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EXPANSION OF FUNCTIONS AND RESPONSIBILITIES OF HEALTH DEPARTMENTS

CHAIRMAN'S ADDRESS

I. C. RIGGIN, M.D., D.Sc.

RICHMOND, VA.

The present changing sociological and economic conditions unquestionably develop a greater need than ever before for consideration of public health services which may or should be rendered in any community or locality. The functions and responsibilities of public health agencies are primarily the prevention of disease, the control of spread of disease and the conservation and preservation of the health of the people as a whole—national, state and local. In the United States, public health organizations have been developed to include federal, state and local or community health services. The federal health service has been organized and developed in such a manner that its functions in no way interfere with state and local health services. It has been charged with the performance of specified governmental functions. It acts as a coordinating body and makes available information nationally for the protection of the health of the people, and renders assistance to the state and local health agencies. Without doubt, because of the divided responsibility for the public health among several departments of the federal government, confusion at times has resulted. There should be a coordination of activities. Efforts have been made and should continue to be made to keep public health within the bounds of recognized governmental functions.

While public health is preventive, and the practice of medicine by the general practitioner as well as by many of the specialists is of necessity both preventive and curative, there is no reason why the practice of private medicine and public health should not go forward without divergence of thought and opinion and, through proper coordination of efforts, develop and render more and better service to all concerned. There are many phases of public health activity which are suitable for cooperative efforts between the physicians and public health agencies. However, there are certain underlying principles that should govern and always be observed. It should always be borne in mind that very few communities are alike, and many factors must be taken into consideration in planning and developing and carrying out any service to be rendered. If the practicing physician is familiar with the procedures to be instituted for the protection of the health of the people, misunderstandings will be eliminated. Not only does the practicing physician have an integral part in preventive medicine, which is of course a means of safeguarding the health of the people, but he is the main factor in accomplishing results. The physicians should not only assist but take the leading part in determining any method for instituting, preventing and controlling disease, and all those engaged in preventive medical work should endeavor to increase the community's confidence in the medical profession.

To the practicing physician rendering service to the individual, it should be the aim of health departments to make every facility available that affects the spread of disease. By law the responsibility for the prevention of spread of disease is an obligation placed on health departments. It is required that every available means be instituted to discharge this responsibility. It is recognized that supervision of water supplies and sewage disposal, information pertaining to vital statistics, collection of reports on communicable diseases, and the institution of methods against the spread of disease are functions that can be performed only by a governmental agency. Other activities directly for the benefit of the practicing physician are diagnostic service, epidemiologic investigations and laboratory examinations. Public health laboratory examinations are not made simply as diagnostic measures but are made in order to aid in the control of disease in the community.

To draw a distinct line of demarcation between preventive medicine and curative medicine is an impossibility. Where one stops and the other begins cannot be definitely defined when consideration is given to the question of the prolongation and conservation of life in contradistinction to the prevention of a particular disease. Medical conferences and clinics which are conducted by health departments should be used as a means of education and to bring to the attention of the public the value and need of medical and public health services. It has been through the demand of the citizens and physicians that tuberculosis diagnostic clinics and sanatoriums have been established and thus become recognized definitely as a public health function. These clinics are a means to discover new cases of tuberculosis and to prevent and control the spread of this disease by having such discovered cases brought under the care of the family physician for advice, treatment and care, or to be institutionalized in a sanatorium, which is usually operated by a state health department or other governmental agency.

Maternity centers have been established in many sections throughout the country, and not only have there been developments in this field which have been educational in character but, in many instances, definite medical service has been rendered to expectant mothers and infants when they were unable for various reasons to

Read before the Section on Preventive and Industrial Medicine and Public Health at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 17, 1939.

obtain medical service through other sources. This has unquestionably been a factor in reducing maternal and infant mortality rates. From an economic standpoint health supervision of the child has been demanded of health departments. This activity is not carried on alone by the official agencies but there is active participation by the medical profession.

Increased knowledge of the public relative to medical facts, and information available as to the possibilities of prevention as well as curative measures, indicate quite clearly that the physician must become more and more the adviser to his patients on preventive and hygienic measures.

Changes in economic conditions in the country during the past several years have presented new and perplexing problems to the medical profession. It can be stated without misstatement of facts that additional burdens have been placed on the medical profession in the care of the indigent sick. The care of the indigent sick may not be a function of the government, but it is a responsibility whether it be national, state or local. This service usually has been available only through the efforts of the practicing physician, who through his self sacrifice and humanitarian service cared for those unfortunates to his own detriment and loss.

With the passage of the Social Security Act there immediately followed additional responsibility of health departments; there was an expansion of public health services both in state and in local communities, and without doubt practically every feature of the Social Security Act has either directly or indirectly some relation to the public health. A greater feeling of economic security to be experienced by the wage earner and the persons looking forward to old age should contribute in some measure to better mental health; and relief from want and deprivation in childhood certainly should lessen, to some extent at least, the hazards of disease resulting from faulty nutrition and lack of medical care.

In the field of industrial hygiene it has been known for some time by the industrial hygienists that additional efforts should be directed toward the control and prevention of certain diseases which take a greater toll among those employed in industry than in other fields of endeavor. It might be mentioned that the death rate from pneumonia among this class of workers is far above that of the general population and that the death rate from tuberculosis is much greater among the unskilled workers in industry than among the general population.

The recognition of the need for intensive study in the field of industrial hygiene has resulted in the formation of a Council on Industrial Health in the American Medical Association. The importance of industrial hygiene has been realized, and a demand for studies and institution of preventive measures for the control and prevention of disease in industry has resulted in the establishment of bureaus or divisions of industrial hygiene in the health departments of twenty-six states and three cities.

There have been added responsibilities of the health departments in relation to certain diseases and crippling conditions. It is an indisputable fact that many of these diseases or conditions are of long duration, and many of those suffering from such diseases or conditions are unable to provide for themselves needed medical care and hospitalization. With the knowledge of the public concerning such diseases and conditions and with the death rates of certain diseases steadily increasing, it has been necessary for the functions of the health departments to be expanded in many instances in an effort to meet this need. Certain diseases, such as cancer and heart disease, have steadily increased as a cause of death, and the health departments are receiving requests not only to furnish information and education which would lead to early diagnosis but even to provide facilities for treatment and care in cooperation with the medical profession.

These added functions and responsibilities of health departments can properly and successfully be carried out in the many fields which must be undertaken only with the coordination and correlation of the activities of those engaged in preventive medicine, industrial medicine and public health. The physician will continue to perform his duty to humanity as far as he is able to do so, but the care of the indigent sick is a responsibility which the physician cannot carry alone, and it is not his place to assume this responsibility without just compensation for his services. A satisfactory solution of the problem of medical service requires the development of cooperative plans between the medical profession and the official health agencies.

State Office Building.

AN EVALUTION OF THE THERAPY OF PEPTIC ULCER

CLARENCE F. G. BROWN, M.D.
CHICAGO
AND
RALPH E. DOLKART, M.D.
BOSTON

Present therapeutic efforts directed against gastroduodenal ulceration are an outgrowth of empiricism bolstered by laboratory experimentation which sometimes comes out in such a way as to confirm fixed ideas. From the standpoint of progress in medical management, one can summarize by saying that several dozen new variations in therapy have been introduced, enabling clinicians to obtain the unsatisfactory results of ten or twenty years ago by a greater variety of methods.

The early clinical work on peptic ulcer was, viewed in retrospect, purely of the trial and error variety. Its object seems to have been to find something which would alleviate the distress of the sufferer. This was finally accomplished by the frequent administration of alkaline powders. If insufficient relief was obtained, these powders were given every hour and, if the patient still complained, throughout the night. When this procedure didn't succeed, the stomach was emptied by tube from time to time and the barrage of neutralization resumed. This fundamental idea remained the same from the early days of Schwartz through Sippy's time and continues into the present. It became apparent to some observers, however, that the greater the amount of medication that was poured into the stomach, the more its secretions increased, the more irritable the gastric mucosa became and the greater was the spasm of the pylorus and ultimately of the large bowel. The formation of this vicious circle necessitated further refinements in efforts to neutralize the gastric contents, and substances less irritating than alkaline powders were substituted.

From the Department of Medicine, Northwestern University Medical School, and St. Luke's Hospital, Chicago.

Read before the joint meeting of the Section on Practice of Medicine and the Section on Pharmacology and Therapeutics at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 19, 1939.

To have any progress in ulcer therapy, one must find a way to induce the gastroduodenal mucosa to protect itself from ulceration. In approaching the problem from this aspect let us state as nearly as we can the etiologic factors associated with some 1,500 recurrences of ulcer observed in a carefully studied group of cases during the past fifteen years. It should be emphasized that the opportunities for observation were possible because of the recurrences. We hope that we have honestly evaluated them. In many instances it seemed quite plausible that the etiologic factors responsible for the recurrence were also responsible for the original ulcer. Functional nervousness, including fatigue and anxiety, was by far the greatest detectable cause of recurrence. Next in importance was an acute infection such as a cold, an acute sore throat, a sinus infection, an acutely abscessed tooth or acute gastro-enteritis. Of third consideration were the things put into the stomach by the patient, hamburgers and restaurant potato salad leading the list in foods, with salicylates and iron preparations prescribed by other physicians following closely. We are observing the effects of sulfanilamide and related substances with interest. The treatment of peptic ulcer must be guided by the causes and the predominating cause receive the major part of the therapeutic effort.

The problems arising in connection with the acute stages of gastroduodenal ulceration — perforation, hemorrhage and obstruction—are diverse but are not as difficult to treat as the chronic manifestations of the disease, because fewer alternatives in therapy are available. Perforation constitutes a surgical emergency as soon as diagnosed. Obstruction constitutes a surgical problem only when it is completely established that the retention is due to scar tissue formation, and edema and spasm have been ruled out by trial therapy with atropinization and aspiration and the lapse of time. This point has been well emphasized by both Means [1] and Lahey. Meulengracht [2] reported a mortality of 1.3 per cent in a group of 368 patients with massive hemorrhage treated medically with the administration of a full diet. This is by no means a new development, and the so-called Meulengracht regimen was used in 1890 by Lennhartz and also by Prebble and Gilbert some years later. Woldman [3] has recently reported a group of twenty-one cases of massive hemorrhage treated with a continuous aluminum hydroxide drip. Finsterer [4] and others advocate immediate and radical operation, although their mortality statistics are considerably higher. Bock,[5] Marriott and Kekwick [6] and Wood [7] prefer a restricted diet and repeated blood transfusions. Still other clinicians employ starvation therapy. At present the weight of evidence suggests that the best results are obtained with an unrestricted bland dietary regimen. While this regimen has its merits, the final choice in therapy depends on the clinical condition of the patient. When there is a marked fall in blood pressure, profuse diaphoresis, pallor and nausea, transfusion certainly should be employed. Recently we tried the hourly gelatin feedings described by Andresen [8] and by Windwer and Matzner [9] and obtained good results when mucin and frequent feedings had failed.

Various reports on the treatment of chronic gastroduodenal ulceration are difficult to interpret. Studies of results from different types of therapy used with the same group of patients have been comparatively few. Despite the great number of reports in the literature, therefore, there is little common ground on which to base a comparative evaluation. We shall review briefly and comment on the more commonly employed forms of ulcer management.

SIPPY MANAGEMENT

Traditional management, unmodified from the original plan of therapy described by Sippy, is probably not widely employed. Various dietary modifications together with efforts to neutralize the gastric contents with alkaline powders are, however, in common use. There is no conclusive affirmative evidence and there is considerable negative evidence regarding the hypothesis that complete neutralization of the gastric contents is the goal to be attained in treating a patient with ulcer. In our group of twenty cases previously reported,[10] weekly gastric analyses were performed during the period of observation, which lasted on an average three and one-half years. Our data showed that the spontaneous trends of the free acid levels were unrelated to the type of therapy, that fluctuations in gastric acidity bore no definite relationship to the onset of a recurrence of ulcer and that there was no correlation between the height of the free acid level and the degree of distress manifested by the patient. Additional studies, in which fractional gastric analyses were performed for eight hour test periods, showed that complete neutralization of the gastric contents by alkaline powders was followed by a rise in the free acid to levels higher than those which existed prior to the administration of the alkali. This fundamental point was first shown by Carlson in 1916 but is still generally disregarded.

Perhaps the corrosive action of the gastric secretion plays some part in the formation of an ulcer and in the maintenance of its chronicity. It is our opinion, however, that in the efforts of clinicians to produce completely neutral stomach contents they lose sight of more important factors in ulcer management. In comparing the incidence of recurrences of ulcer in patients receiving Sippy management with the incidence of recurrence in the same and different patients while receiving other types of management, no significant difference in frequency was obtained. Forty per cent of the patients receiving alkaline powders and hourly feedings became worse in the eighth to twelfth week of treatment. Whether this was due to a dietary deficiency resulting from the restricted regimen, possibly an iron or vitamin deficiency, or to some other factor, we don't know. The more conscientious the patient in following the diet, the worse he did. Furthermore, alkalization is not without definite dangers. It has been alleged that the incidence of renal calculi in patients who have been receiving alkaline powders over extended periods is

1. Means, J. H.: Treatment of Peptic Ulcer: Indications for Surgery, Surg., Gynec. & Obst. **66:** 264-268, 1938.
2. Meulengracht, E.: Weitere Erfahrungen über die Behandlung massiver Magenblutungen ohne Beschrankung der Nährungszufuhr, München. med. Wchnschr. **84:** 1565, 1937.
3. Woldman, E. E.: The Treatment of Hematemesis and Melena by a Continuous Aluminum Hydroxide Drip, Am. J. M. Sc. **194:** 333-340, 1937.
4. Finsterer, H.: Indications for Surgical Treatment of Acute Severe Gastric Hemorrhage, Wien. med. Wchnschr. **88:** 201, 1938.
5. Bock, A. V.: Use and Abuse of Blood Transfusions, New England J. Med. **215:** 421-425, 1936.
6. Marriott, H. L., and Kekwick, A.: Administration of Fluids, Practitioner **139:** 25-70, 1937.
7. Wood, I. J.: Treatment of Hemorrhage, Brit. M. J. **2:** 115-121, 1936.
8. Andresen, A. F. R.: Physiologic Indications in Peptic Ulcer Diets, Surgery **5:** 535, 1939.
9. Windwer, C., and Matzner, M. J.: Peptic Ulcer: The Effect of High Protein Diet, Am. J. Digest. Dis. & Nutrition **5:** 743-744, 1939.
10. Brown, C. F. G., and Dolkart, R. E.: Gastric Acids Trends During Recurrences and Remissions of Duodenal Ulcer, Arch. Int. Med. **60:** 680-693 (Oct.) 1937.

far too high to be considered insignificant. Although alkalosis occurs less frequently when tribasic salts are used, it remains an ever present potential source of danger. In brief, hypersecretion and gastric irritation are produced as the price of hourly alleviation of distress, and the patient's general condition is harmed rather than improved. The condition of the sufferer from chronic ulcer is rendered more chronic and nothing constructive is accomplished.

COLLOIDAL ALUMINUM

Aluminum hydroxide and magnesium trisilicate preparations have come into extensive use to replace alkaline powders in buffering gastric contents without having the same untoward effects. Colloidal aluminum may be administered in large amounts without danger of alkalosis. Ivy has demonstrated that in dogs large amounts of aluminum hydroxide do not interfere with the activity of other digestive enzymes. In his laboratory, however, it was also shown [11] that the administration of large daily doses to normal dogs did not produce a decrease in the gastric secretory response to food, and on prolonged administration there was actually a compensatory increase in gastric secretion and acid in response to food when aluminum buffered test meals were given. While these two effects are undesirable, they are not as marked as in the case of alkaline powders. After careful clinical studies, Rutherford and Emery [12] recently reported twenty-eight cases of severe intractable peptic ulcer treated with colloidal aluminum which had been observed for long periods while other forms of therapy were being given. It is suggested that this treatment is advantageous when ulcer does not respond to other types of treatment because of marked hypersecretion. Patients whom we have observed made better progress than those receiving alkaline powders. There was less difficulty in controlling bowel function. There was no significant difference in the incidence of recurrence.

GASTRIC MUCIN

Ivy and his co-workers [13] have demonstrated the prophylactic value of gastric mucin in the therapy of postoperative jejunal ulcers in Mann-Williamson dogs and in the prevention of ulceration in dogs with biliary fistulas. It is reasonable to suppose that mucin furnishes the needed material in a person whose mucus metabolism is deficient, as has been clearly shown by Fogelson.[14] We are firmly convinced of the rationale of gastric mucin therapy. Much of the criticism of mucin which arose shortly after its introduction resulted from the presence of impurities with secretagogue action. Preparations now available have been largely controlled in this regard. The use of four daily doses totaling from 4 to 8 Gm., together with frequent feedings and the frequent administration of antispasmodics, has been more successful in our hands in reducing the incidence of recurrence than any other form of management.

11. Ivy, A. C.; Terry, L.; Fauley, G. B., and Bradley, W. B.: The Effect of Administration of Aluminum Preparations on the Secretory Activity and Gastric Acidity of the Normal Stomach, Am. J. Digest. Dis. & Nutrition **3**: 879-883, 1937.

12. Rutherford, R. B., and Emery, E. S., Jr.: The Clinical Effect of Colloidal Aluminum Hydroxide on Patients with Peptic Ulcer, New England J. Med. **220**: 407-410, 1939.

13. Orndorff, J. R.; Fauley, G. B., and Ivy, A. C.: The Prophylactic Value of Gastric Mucin in the Therapy of Postoperative Jejunal Ulcer: An Experimental Study in Dogs, Am. J. Digest. Dis. & Nutrition **3**: 26-34, 1937.

14. Anderson, R. K., and Fogelson, S. J.: The Secretion of Gastric Mucin in Man: A Comparative Study in the Normal Subject and in the Patient with Peptic Ulcer in Response to an Alcohol Test Meal, J. Clin. Investigation **15**: 169-172, 1936.

VEGETABLE MUCILAGE

Vegetable mucilages were first introduced as sources of smooth bulk in the treatment of spastic constipation. We observed that patients with peptic ulcer and concomitant symptoms of irritable bowel who were treated for the latter condition with vegetable mucilage did so well that we gradually substituted this for gastric mucin in cases of less severe ulceration. We do not consider it as effective as gastric mucin. As an adjunct in the treatment of ulcer for controlling symptoms of irritable bowel and constipation, we find the vegetable mucilages extremely useful. For the past four and one-years we have had an opportunity to employ one of the preparations [15] extensively in the routine treatment of bowel symptoms in cases of peptic ulcer in the outpatient clinic. Increasing the concentration of powdered milk in the mucilage has proved helpful in controlling the ulcer symptoms as well. At present we do not use liquid petrolatum or other lubricants for regulating bowel habits except in the presence of rectal disease. The importance of measures to relieve symptoms of irritable bowel cannot be overemphasized. The close correlation between bowel spasm, pylorospasm and associated distress due to ulcer makes these factors more important in the treatment of ulcer than a futile attempt to maintain neutral gastric contents.

PARENTERAL THERAPY

There are so many conflicting reports on the results of the treatment of peptic ulcer with histidine hydrochloride that one's credence is strained in attaching any therapeutic value to it. In our group of patients with duodenal ulcer, histidine injections were given as one of the treatments to which they were subjected. There was no reduction in the length of time a recurrence of ulcer persisted or subsequent alteration in the patient's course when the number of recurrences which occurred prior to the treatment with histidine were compared with the number which occurred after this treatment. Five control patients in the group who had no ulcers but who received ulcer therapy showed a psychogenic response which could be duplicated with any type of medication as long as it was administered hypodermically.

VACCINES AND FOREIGN PROTEINS

Vaccines and various types of foreign proteins have been employed from time to time as therapeutic agents. These are subject to the same criticisms that have been given to histidine. According to Sandweiss's figures, efforts to control ulceration by parenteral therapy are actually deleterious, since from 87 to 92 per cent of the patients have relapses by the end of the first year as compared with from 46 to 54 per cent treated with diet or surgical intervention.[16]

COMMENT

The chief efforts in the medical management of the chronic stages of gastroduodenal ulceration should be directed toward protection or improvement of the involved area of gastric or duodenal mucosa. This cannot be achieved as a routine by any one form of therapy. In the last analysis all measures should be designed to stabilize the intermittent peristaltic activity

15. Metamucil, prepared and supplied to us by G. D. Searle & Co., Chicago.

16. Sandweiss, D. J.: Comparative Results with Dietary, Parenteral and Surgical Treatment in Peptic Ulcer, J. A. M. A. **108**: 700-707 (Feb. 27) 1937.

of the stomach and reduce pylorospasm. This permits the normal backwash of duodenal contents and a more normal emptying time of the stomach. The latter is especially significant as far as hypersecretion is concerned. The desired goal can be reached by different routes. The surprisingly good records made by patients treated with hourly feedings, relative reform from frantic, anxious living, and antispasmodic medication cannot be overemphasized too much. Curtailment of emotional excitement and of fatigue are as fundamental in any plan of ulcer therapy as are the medications prescribed. It is important that in one's zealousness to treat the ulcer one doesn't lose sight of the patient. We have attempted to adhere to the rule: treat first the patient, second the bowel and last the ulcer. Tranquillity, rest, a proper diet from the standpoint of frequency of feedings and vitamin content, and antispasmodics are of major importance. Powders, mucin, aluminum hydroxide and mucilages should be considered secondarily as adjuncts in therapy.

Regardless of intermittent reports to the contrary, we must confess that at the present time gastroduodenal ulceration must be considered as a chronic disease. The incidence of recurrence will not be lowered until it is recognized as such and patients are maintained under continuous observation like patients with diabetes mellitus or pernicious anemia. For example, we have found that 68 per cent of the recurrences of ulcer in our clinic occur during the spring and fall. By observing patients at regular intervals throughout the year and placing them under rigid medical management during these seasons as a prophylactic measure we have reduced the incidence of recurrence by approximately 15 per cent. For real progress in ulcer therapy one must devise ways of improving the gastroduodenal mucosa and reducing hypermotility and not stop at the surface of the problem in persisting with neutralization, which is impossible for even the most astute physician to achieve day and night for the life span of any person. Complete education of the patient so that he is adequate and at ease in his environment is a more permanent and satisfactory objective.

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ABSTRACT OF DISCUSSION

DR. CHESTER M. JONES, Boston: I should like to suggest a slightly different approach to the subject, although it is fundamentally the same as that expressed by the authors. Aside from the treatment of perforation, obstruction, possible hemorrhage and the ever present malignant stomach, ulcer treatment should be considered under two headings: (1) treatment of the acute condition in an attempt to heal the ulcer; (2) measures to prevent recurrence. As far as the first is concerned, any form of therapy will work in most cases. The authors outlined measures that have been utilized, and they might have added many more. They all work for immediate results except in the most complicated cases. Alkali of course will work but it is no better than other methods. In some instances it is important to try all the methods or the method one is most familiar with. As a rule the simplest method is the best. It is easiest on the patient and also on the physician. Furthermore, it does not permit the physician to follow or draw fallacious conclusions as to the results of his therapy. I think this is the most important point. One uses this medication or that and then believes, because the patient is improved, that it is responsible for the improvement. In the natural history of the disease, if the patient is given a chance he will get better and his ulcer will heal. Measures to prevent the recurrence of ulcer are more difficult and, at present, an insoluble problem. There is no form of therapy which will guarantee a cure, and I think it is best for the patient to understand this at once. It seems to me of utmost importance for the individual who has a peptic ulcer to recognize the fact that he has a chronic, incurable disease. That doesn't mean he can't live as a useful member of society; it doesn't mean that he can't be symptom free a good part of the time, but it does mean he has to recognize that the condition which produces symptoms from time to time must be managed rather than that he should expect a cure from this or that measure. No such cure exists at present. We don't know the cause of ulcer, although we speculate wisely about it. I like the arrangement stressed by Drs. Brown and Dolkart that the important therapeutic measures should include: First, frequent feedings, and one might add of simple foods, and it doesn't matter what type of simple food it is. Second—this possibly should be first—freedom from tension of every sort. That means fatigue, and it means emotional stress and strain. That is the most difficult thing to achieve but it certainly is the goal to aim for. Finally, medicinal measures, in which they have emphasized possibly mucin. I should like to add, because I think it is equally physiologic, the use of atropine in tolerance doses, doses that are just short of producing unpleasant symptoms. There is no doubt that antispasmodics do prevent possibly or ward off the recurrence of ulcer.

DR. WILLIAM H. OLMSTED, St. Louis: I agree with the authors and with Dr. Jones that it is the mode of living of an ulcer patient that is the most important therapeutic factor. There is no disease which better illustrates the necessary care with which a physician must go into the details of the mode of life of his patient, if the patient is to keep free from ulcer symptoms. I am particularly interested in dietetics and propose to give specific suggestions as regards the intimate diet of ulcer patients; that is, after his recovery from acute symptoms and with the purpose of avoiding recurrences. First of all he should be careful not to overload his stomach and to cultivate the habit of eating between meals, and especially he should beware of holiday food and alcohol. He should cultivate drinking milk or buttermilk instead of coffee and tea. He should avoid eating large servings of meat and should take it but once a day. He should carefully avoid highly seasoned foods, such as sausage, frankfurters, soups, peppery salads, Mexican dishes, mustard, horseradish, pepper, green peppers, catsup, tobasco, A-1 and other meat sauces. He should avoid too coarse breads or cereals, such as bran muffins and bran cereals, whereas whole wheat bread is allowed and recommended. He should avoid too much hot bread and take bread that is crusty, a day old is better, or toasted. He should avoid seedy vegetables and the skin of fruits. Instead of whole tomatoes, rather the juice. He should avoid cucumbers, radishes, green olives, raw celery, berries, coconut and nuts. He should avoid rich foods, such as mince pie, cream pie, layer cakes, plum pudding and fruit cake. What the ulcer subject should eat is characterized by the simple diet that the growing child should take, leaving out all those fancy and unnecessary foods I have listed. In proportion to which the physician goes into intimate details, as I have tried to illustrate by the patient's diet, and particularly as to his mode of living, will he succeed in treating the ulcer patient successfully and prevent ulcer from recurring.

DR. A. B. RIVERS, Rochester, Minn.: Physicians have gotten altogether too scientific in the treatment of ulcer. They are using all types of therapy. Every week brings some new form of fancy parenteral injection and what-not, and all of them miss the point. They are looking at the ulcer with greater concentration. They can't see the forest for the trees, and I think that the authors and Dr. Jones very well pointed that out. There are three stages very distinct in the treatment of peptic ulcer. First, the control of symptoms. This, as has already been said, can be accomplished by almost any method that changes to some degree the manner in which the patient lives, the food he eats. We are apt to misjudge the efficacy of all fancy methods of treatment. This does not mean that one shouldn't use certain methods that have been taught by Sippy and other authorities. The principle of the first stage in the treatment of ulcer is to do something to make the food intake bland, to keep the acids in the stomach as low as possible and to support the tissues. Give the patient some rest. Under

those conditions, regardless of what you shoot into his veins or hip or what-not, he is going to get comfortable. The trouble is, we stop there. The second stage is to give the ulcer an adequate chance to heal. Under the most perfect experimental conditions an ulcer will not heal in less than six weeks. One of the difficulties in having recurrences so often is that we stop short of the period of healing. When the patient becomes comfortable we are so cocksure that this is the thing that is going to cure him that we say "You go on back to your work. You are fine." Silly, because the ulcer is not healed. The patient may be comfortable because the acids are lower, the spasm mechanism is controlled and he hasn't had any drinks for a couple of weeks. The third requirement in the treatment of peptic ulcer is to attempt to prevent recurrence. That isn't as hopeless as we think. However, we must recognize that peptic ulcer is not a single disease. The cause of peptic ulcer eludes us because we are looking for one cause. There isn't any one, because it isn't even one disease. There are at least five diseases wrapped up in the thing called peptic ulcer. If we can recognize that and find out what particular thing is the important thing in the patient's disease, I think we can prevent recurrence.

DR. CLARENCE F. G. BROWN, Chicago: If these ideas could serve to stimulate clinicians and physiologists to approach the problem by at least two other avenues, we would consider our efforts worth while. In the thirty-five years of the "nothing but neutralization" approach, we have made little progress in trying to understand better the factors leading to the strengthening of the mucosa itself; mucin treatment is at least a beginning. In reducing the hypermotility, through teaching the patient how to stabilize his emotional equilibrium we feel that some progress is possible. There are other factors in the defense mechanism which must be clarified and at least not obscured by the "acid-ulcer" theory. If one subscribed wholeheartedly to this theory one would know all the answers and need no further investigation. This "acid-ulcer" concept is a beautiful and plausible structure, but in our study we found that it failed to furnish consistent etiologic evidence. We therefore believe that there are other protective factors the presence of which prevents ulceration when the patient averages 115 clinical units of free hydrochloric acid and the absence of which allows ulcer formation at an acidity of only 15. One of the purposes of this paper is to stimulate doctors first to remain open minded and secondly to think and work to find and ultimately control the unknown components in the protective mechanism. We appreciate Dr. Olmsted's very specific dietary suggestions. We also feel that a physician should be specific in his advice to the patient; teach him to think honestly and change his point of view toward his noxious environment, if you cannot entirely change the environment. The usual "do not worry" is not sufficient; we have to train them how to do it. It may be necessary to use the main therapeutic effort on the wife of the patient or to visit the chief officer of the company for which he works to explain what there is about the man's job that makes him have an ulcer. Knowing the patient's point of view toward his environment, plus knowing how the environment itself must be changed, often involves details just as painstaking as are the dietary directions.

A Profoundly Erroneous View.—There is, if I mistake not, a prevalent opinion that the medical man of the future is to be equipped as a physicist, as a chemist; that he is to have behind him an array of delicate apparatus and reagents with which exact measurement is to be made possible to him; and that in these directions the salvation of medicine is to be sought. If I am correct in my belief that such is a current view, then I would state emphatically that I believe it to be a profoundly erroneous view. It confuses two issues—the daily routine of the practitioner and the work of the special investigator. These stand apart: they always will stand apart. You cannot deal with masses of patients by using refined methods; repeatedly it has been tried; it always breaks down. The chief weapons of the general practitioner are today, and will remain, his own unaided senses; these are supplemented by a few simple devices.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

INTRACRANIAL HEMORRHAGE IN THE NEWBORN

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Cerebral hemorrhage in the newborn is unquestionably of common occurrence. The statistics from various clinics differ a great deal, depending on the care and the method of observation. Careful postmortem examination of stillborn babies and infants dying within the first few days of life indicates a very high percentage of lesions of the brain attributable to trauma during delivery. Ford [1] concludes that at least one third of all deaths occurring during the first two weeks of life are due to birth injury.

The routine examination of the spinal fluid of a large number of newborn infants studied consecutively reveals the fact that approximately 12 per cent of all infants exhibit blood in the spinal fluid.[2] Fortunately, only a small group of these children show clinical evidence of cerebral damage.

The prognosis of intracranial hemorrhage in those infants surviving the initial shock of injury is a problem about which there seems to be little unanimity of opinion. In order to determine definitely the ultimate outcome which one may expect among those children suffering with cerebral hemorrhage at birth, it is necessary first that a careful study at birth reveal without doubt the true nature of the pathologic condition and second that a continuing study be carried on by the same investigator over a period of at least ten years and possibly longer. Such conditions are not easily fulfilled. The diagnosis of the disease at birth is not always so certainly and so simply made as one might be led to believe. It is only necessary to study a series of charts from some large obstetric service in a private hospital to appreciate this fact. It will be found that frequently the data may be inadequate to justify the diagnosis; much more often it will be observed that infants exhibiting certain symptoms and physical conditions which most likely have been produced by injury to the brain at birth have been diagnosed as having atelectasis or asphyxia without sufficiently careful study to reveal the true nature of the disturbance.

Further, it should be stated that the establishment of the diagnosis in this condition cannot be left entirely in the hands of the house physician in charge of the nursery in a large obstetric service. His observations, in order to be accurate and of value in such a study, must be checked by one who has had long experience in studying such infants. This is particularly true in the examination of the spinal fluid. A lumbar puncture skilfully done is reliable in establishing the presence or absence of blood in the spinal fluid produced by cerebral trauma; it cannot be depended on for diagnosis when carried out by one relatively inexperienced. The absence of blood in the fluid does not rule out intracranial injury, nor does the presence of xanthochromia establish the diagnosis of cerebral hemorrhage. I have never seen a spinal fluid obtained during the first four or five days of life which was perfectly colorless, although the pigment may be so faintly apparent that it

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1. Ford, F. R.: Diseases of the Nervous System in Infancy, Childhood and Adolescence, Baltimore, Charles C. Thomas, 1937.

2. Roberts, M. H.: The Spinal Fluid in the Newborn with Especial Reference to Intracranial Hemorrhage, J. A. M. A. **85**: 500 (Aug. 15) 1925.

is easily overlooked if the fluid is not compared with water. The existence of a definite xanthochromia, even in the presence of gross blood, does not necessarily mean intracranial hemorrhage if the puncture has been done awkwardly by one inexperienced in the procedure. Microscopic examination of the red cells in the spinal fluid and chemical examination of the supernatant fluid may be necessary to confirm the diagnosis of intracranial hemorrhage. Xanthochromia as a rule is entirely unrelated to intracranial hemorrhage.

These and many other factors make the diagnosis at times difficult and make studies of a large group of records of newborn infants in most hospitals, to say the least, open to considerable inaccuracy.

In surveying the files of any large children's hospital one finds a depressing group of cases variously diagnosed as Little's disease, cerebral spastic paralysis, cerebral atrophy, microcephaly and even cerebral maldevelopment, all of which are directly attributed to birth injury. In many instances there is a story of a difficult labor accompanied by some of the classic signs and symptoms of intracranial hemorrhage. On this evidence is based the diagnosis. In quite a number there may be no such story of difficulty at birth and yet, on account of certain physical and mental disturbances which are commonly recognized as the probable results of intracranial injury, these cases too are placed in this category. Careful study of these children by the neurologist and neurosurgeon, with the aid of air injections into spine and ventricles, may reveal sufficient data to make us fairly certain that the pathologic condition with which we are dealing is the result not of injury but probably of maldevelopment or degeneration. It seems to me that too little attention has been given to these children. Physicians are prone on rather superficial evidence to place them in the scrapheap of cerebral birth injury, and why not? There is a story of probable injury at birth: the child was cyanotic and, according to the mother, had a convulsion and now two years later he presents some features which we have come to believe are typical of cerebral injury. Is this sufficient evidence for diagnosis? I am inclined to think it is not. The question arises Might not the cerebral maldevelopment be a cause of the dystocia and distressing symptoms at birth rather than the effect?

TABLE 1.—*Intracranial Hemorrhage Due to Birth Injury in 19,052 Consecutive Deliveries, White and Negro*

	Number	Percentage of Series
Deaths	77	0.4
Survivors of neonatal period	55	0.3
Total	132	0.7

I am convinced that no study of this problem from the files of a children's hospital can give any true conception of the significance of cerebral birth injury and its importance in the child's physical and mental development. Only by following a sufficiently large group of children from the nursery to later childhood can we approach the answer to this problem.

An attempt at such a study has been made in the newborn service at Emory University. This service consists of a private pavilion in which the upper class of Atlanta's population is cared for, and a large Negro hospital in which approximately 1,500 deliveries occur each year. In addition, there are included infants born in another large private hospital of the city. These combined services place the total number of deliveries studied at 19,052, of which 8,577 are white and 10,475 are Negro.

Unfortunately, we do not fulfil in all particulars the ideals set forth in this paper. The diagnosis of cerebral hemorrhage has not been carefully checked in every instance by a single observer. This, of course, is obviously impossible in a large private hospital. We have, however, accepted only those cases for study which seem to meet unquestionably the usual standards for such diagnosis. It is probable that under our strict censorship a number of infants suffering from intracranial hemorrhage have been excluded. It is equally possible that an occasional instance of cerebral maldevelopment may have been included in the study. Practically every diagnosis has been substantiated by a spinal puncture done by a well trained pediatrician. However, this was not an absolute requisite. In two cases in the series the fluid was free of blood, but at autopsy the diagnosis was proved as definitely intracranial hemorrhage.

TABLE 2.—*Deaths Occurring in 19,052 Consecutive Deliveries, White and Negro*

	Total Number	Rate per 1,000 Live Births	Intracranial Hemorrhage	Estimated Intracranial Hemorrhage
White	164	19.1	34	41
Negro	348	33.2	43	87
Total	512	26.8	77	128

Table 1 shows the number of cases of intracranial hemorrhage encountered in the entire group of 19,052 consecutive deliveries, both white and Negro. A total of 132 infants was definitely diagnosed, only 0.7 per cent of the entire group. This figure is undoubtedly far too low, as adequate autopsies were infrequently done. If Bundesen's [3] figure of approximately 25 per cent for intracranial hemorrhage in neonatal deaths is accepted, it will be seen from table 2 that instead of seventy-seven deaths from this cause there should be 128. If this estimated figure for deaths from intracranial hemorrhage is added to the number of cases of cerebral hemorrhage in which the neonatal period was survived, the total figure is 183, or an incidence of about 1 per cent in the entire series.

TABLE 3.—*Causes of Death in 8,577 Consecutive Deliveries (White)*

	Term	Premature	Total
Intracranial hemorrhage	27	7	34
Respiratory deaths, atelectasis-asphyxia	22	86	108
Others	22	0	22
Total	71	93	164
Stillbirths			74

Table 2 gives the number of neonatal deaths with the rate per thousand live births, the actual number of intracranial hemorrhage cases encountered, and the estimated number of deaths due to this condition. The comparative figures for the races are interesting, showing the relatively high neonatal death rate for Negroes.

Further investigation of the deaths from intracranial hemorrhage shows that, of the seventy-seven infants definitely known to have this condition, sixty-six died

3. Bundesen, H. N.; Fishbein, W. I.; Dahms, O. A.; Potter, Edith L., and Volke, Walter: Factors in Neonatal Deaths, J. A. M. A. **111**: 134 (July 9) 1938.

before they were 72 hours old; only seven lived longer than six days. If the infant survives the initial trauma for three days, he probably will not die primarily of cerebral injury.

Table 3 gives in some detail the total deaths which occurred among the 8,577 white infants. These statistics are of importance chiefly in stressing the inadequate methods employed at the present time in determining the causes of death during the neonatal period. Owing to the fact that autopsies either were not done or were inadequately done, only fifty-six cases of 164 were accurately diagnosed; the remaining 108 were, in the main, classified as asphyxia or atelectasis, which diagnoses are of course entirely unsatisfactory.

Table 4.—*Causes of Death in 10,475 Consecutive Deliveries (Negro)*

	Term	Premature	Total
Intracranial hemorrhage	38	5	43
Respiratory deaths, atelectasis-asphyxia	58	211	269
Others	19	17	36
Total	115	233	348
Stillbirths	261	361	622

Table 5.—*Stillbirths Occurring in 19,052 Consecutive Deliveries (White and Negro)*

	Total Number	Rate per 1,000 Live Births	Estimated Intracranial Hemorrhage (33⅓%)
White	74	8.6	25
Negro	622	59.3	207
Total	696	36.5	232

Table 4 presents the same material for the 10,475 Negro infants. Of the 348 deaths only seventy-nine were accurately diagnosed; the remaining 269 cases were classified in the usual manner as atelectasis or asphyxia. This emphasizes the fact that until adequate autopsies are done on infants dying during the neonatal period and on the stillborn there is little probablity of greatly reducing the mortality rates.

No study of the incidence of intracranial hemorrhage in the newborn can approach accuracy without a careful analysis of the stillbirths. Various observers have placed the figure at from 20 to 45 per cent and, in certain observations on the premature, as high as 80 per cent. A conservative estimate of intracranial hemorrhage in the stillborn is probably in the neighborhood of one third of such infants.

Table 5 shows stillbirths which occurred in the survey with the rate per thousand live births. If one accepts the figure already given as the probable incidence of intracranial hemorrhage in the stillborn, an additional 232 deaths must be attributed to this cause, bringing the total incidence (living and dead) to about 415, or approximately 2 per cent of all births.

Further consideration of table 5 brings out the fact that the stillborn rate among Negroes is tremendous, indeed so out of proportion to that of the white race that it is probably entirely inaccurate to estimate the number of cases of intracranial hemorrhage cases on the same basis in the two races. There is undoubtedly some very potent factor or factors at work in the Negro race which fail to militate against the white.

Table 6 shows the incidence of syphilis in the Negroes of this survey. Of the 10,475 deliveries, either the mother or the infant or both gave a positive Wassermann reaction in about 1,853 instances, or 17.6 per cent. Known intracranial hemorrhage both in the living and in the dead showed only 21.6 per cent to be syphilitic, which would make it appear that the infection has little direct influence in producing the pathologic condition. In that group of infants dying of "atelectasis and asphyxia," it is probable that syphilis was the true cause of death in one third of the cases.

Table 7 is a comparative study of the incidence of intracranial hemorrhage in the two races. As explained before, these figures are undoubtedly low and, if proper correction should be made for the large group of neonatal deaths from unknown causes, the figure would probably lie somewhere between 1 and 2 per cent of all deliveries. One interesting difference in the figures is the very small number of Negro infants who appear to survive the neonatal period. Only about 30 per cent of the Negro infants suffering with cerebral hemorrhage survived, whereas more than 50 per cent of those infants lived in the series of white cases.

The significance of the weight of the infant at birth as related to birth injury has been stressed by other writers. In this series thirty infants were overweight, fifty-seven were of average weight and thirty-two were small babies.

A study of the parity shows that seventy-two of the infants were born of primiparous women and thirty-nine of multiparous.

The character of the labor in this series indicates that thirty-eight infants were born by labors described as normal, whereas seventy-nine were abnormal in some respect, such as forceps deliveries, breech presentation or some other operative procedure.

In table 8 are shown sixty-six cases of intracranial hemorrhage due to birth injury which have been followed for varying periods of time in an attempt to determine what the ultimate outcome may be. In evaluating these figures we must keep in mind what has already been stressed: the possibility of errors in diagnosis at birth. However, since we have thrown out a considerabe number of cases which were probably cerebral hemorrhage but which we felt could not be diagnosed with certainty, it is likely that few if any cases have been included which were due to other pathologic processes.

Table 6.—*Incidence of Syphilitic Infection in 10,475 Consecutive Deliveries (Negro)*

	Positive	Negative	Per Cent Positive
Total number	1,853	8,622	17.6
Intracranial hemorrhage, living and dead	13	47	21.6
Deaths due to other causes	9	27	25
Respiratory deaths, atelectasis-asphyxia	94	175	35
Stillbirths	254	368	40.8

Table 7.—*Incidence of Intracranial Hemorrhage in White (8,577) and Negro (10,475) Deliveries*

	White	Percentage of Total	Negro	Percentage of Total
Deaths, neonatal	34	0.40	43	0.41
Survivors of neonatal period	38	0.44	17	0.16
Total	72	0.84	60	0.57

The following criteria were used as a basis for diagnosis: In most instances there was the history of a difficult labor which would naturally predispose to injury; most of the infants were resuscitated with

difficulty, cried poorly (if at all), were cyanotic, and in every case showed evidence of motor irritation either by local or generalized "twitchings" or outright convulsions; the spinal fluid in practically every instance showed the presence of blood, which was interpreted to have arisen from a preexisting pathologic condition and not due to trauma resulting from the lumbar puncture.

The picture gained from this summary is a bright one. Forty, or about 60 per cent, of the entire group seem perfectly normal today. These children have been followed for an average of five and a half years, none less than ten months, fifteen less than five years and several from twelve to fifteen years. Of course, those observed only a year or two may yet show some residual sign. Certainly, however, they will not suddenly develop the typical picture of cerebral spastic paralysis at some later date.

TABLE 8.—*Intracranial Hemorrhage in the Newborn: Prognosis in Infants Surviving the Initial Shock of Injury*

Total Number of Cases Observed, 66			
A*	B*	C*	Infants Observed Less than One Month
Normal	Motor Disturbance	Motor and Mental Disturbance	
40	4	10	12

*Average number of years followed: A, 5½ years; B, 8 years; C, 3 years.

Fourteen of these cases have shown some definite motor or mental disturbance, or both. Only nine can be classified as cerebral spastic paralysis, showing both motor disturbance and mental retardation. The four cases showing only motor disturbance consist of two monoplegias, a paraplegia and one showing general spasticity and incoordination of all extremities, although the mentality is normal for the child's age.

Of the twelve children not followed it seems reasonable to suppose that at least seven, or 60 per cent, are perfectly normal today, which would bring the total figure for normals almost to fifty.

It is interesting to note that only two of the children showing motor and mental disturbance are Negroes. This observation bears out the impression I have gathered after working for many years with Negro children: that typical cerebral spastic paralysis is extremely rare in this race. A search of the files in a large Negro pediatric outpatient clinic reveals only five cases which might be so classified. There may be a definite relationship between this observation and the fact that apparently the incidence of cerebral anomalies, as is true with certain other anomalies (particularly those of the gastrointestinal tract and the heart) is much less common in the Negro race. This may prove another link in the evidence that many so-called "residuals of birth injury" in reality may be cerebral anomalies.

CONCLUSIONS

Intracranial hemorrhage in the newborn is of common occurrence. It manifests itself clinically in from 1 to 2 per cent of all infants. About 85 per cent of all babies who fail to survive the initial shock of birth injury die within the first three days of life. After this period it is not probable that intracranial hemorrhage will be the direct cause of death.

Of the infants who survive the initial shock of birth injury, approximately 75 per cent will develop normally. Relatively few will develop the typical features of Little's disease or cerebral spasticity.

It seems likely that a large number of cases of so-called cerebral spasticity are not due to birth injury but probably are attributable to degeneration or maldevelopment.

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ABSTRACT OF DISCUSSION

DR. RALPH M. TYSON, M.D., Philadelphia: Dr. Roberts has brought to our attention an important problem in the care of newborn infants. The low mortality rate presented apparently indicates that good obstetrics as well as good pediatrics is being practiced. I am interested to know whether the information given is based solely on the cases that came to autopsy or whether it is a combination of clinical and autopsy material. The large number of premature Negro infants dying of what is spoken of as "respiratory conditions" seems to me might have been confused with cases of intracranial hemorrhage. The small premature infant is particularly liable to intracranial damage. The clinical diagnosis of intracranial hemorrhage is not easy to make and I doubt very much whether the criteria suggested by Dr. Roberts will fit all the cases. So many other conditions present clinical symptoms resembling intracranial hemorrhage that the real diagnosis cannot be made except by careful postmortem studies. Hemorrhage into the brain substance, if large, may cause porencephaly or may be small from anoxemia. The location of either large or small hemorrhages has a great deal to do with what symptoms are produced and perhaps in neither one would blood be found in the spinal fluid. Edema of the brain, a condition that is occasionally found in autopsies of the newborn, may produce similar symptoms. Again in this condition no blood will be found on spinal puncture. More careful studies of the brain at autopsy are revealing the fact that maldevelopment is more frequent in occurrence than we have believed heretofore. This condition again produces symptoms resembling injury. I fear that in the past many obstetricians have been falsely accused of poor obstetric technic because of such cases. Even pyelitis in the newborn, while rare, may produce symptoms resembling intracranial injury. In work with the newborn child in Philadelphia, one of the biggest difficulties to overcome is the lack of accurate clinical observation and sound judgment in arriving at decisions relative to the cause of death. Heretofore atelectasis, congenital heart disease and intracranial injury have been the choice leaning props for the physician who is not able to make a true diagnosis. Undoubtedly our knowledge of intracranial hemorrhage, especially in the dead infant, will be satisfactorily accurate when autopsies are done on all infants by some one who is not only skilful but who is also very much interested in the problem.

DR. HUGO EHRENFEST, St. Louis: I can speak on the subject only from the standpoint of the obstetrician. The paper includes a series of injuries observed in Negro children and discussed from the angle of a possible syphilitic aspect of the question. I don't know of any previous statistical investigation in regard to this point, though among the many writers on the subject only the French assert that syphilis does play an important role in the causation of these injuries. In this respect the author's contribution is noteworthy. I agree with practically everything Dr. Roberts has said, but I do not quite agree with the title of his paper. Though it refers only to "cerebral hemorrhage" he and also Dr. Tyson spoke of intracranial birth injuries in general. These are not synonymous terms. The obstetrician realizes that the baby's head is likely to become traumatized during labor and there probably is a definite amount of "physiologic" damage. Traumatization obviously varies within wide limits, from one hardly noticeable up to traumas resulting in extensive hemorrhage. The "hemorrhage" represents only a special type of injury and thus more precisely one can discuss either traumatization in general or hemorrhages in particular. The problem of birth traumatization and intracranial damage is a broader and wider one. The human fetus is the only mammal that has not a rigid skull but one in which the various bones are only loosely connected with one another.

The human fetal skull has to change its configuration as it passes through the bony pelvis. It is enabled to do this on account of incomplete ossification, which leaves the flexible sutures and fontanels. Compression of the head in one direction always causes a corresponding lengthening of diameters in the perpendicular direction and therefore there is no noteworthy actual reduction in volume. Excessive and long continued pressure may cause anemia and degenerative processes. With sudden expansion there may develop an acute edema of the brain, but the nature of intracranial damage is chiefly determined by the stress on dura folds during molding. When the pediatrician desires exact information concerning labor he should not have to ask the patient. The obligation rests with the obstetrician to note in his records how the newborn baby behaved immediately after birth and for the next few days, whether it breathed or cried immediately, how much effort was required to initiate respiration, whether there was noticed any jerking of extremities, convulsions or interruptions of breathing, and so on. All this information should be on the obstetric record. It is invaluable for the pediatrician or neurologist who many years later has to decide whether a physical or mental defect may be connected with a possible intracranial damage sustained at birth.

DR. JULIUS HESS, Chicago: There has been a premature infant station at the Sarah Morris Hospital in Chicago for seventeen years. During that time 3,148 premature infants have been admitted to the station. Of those, 887 have died. We have been able to obtain autopsies on 774, and in 42.7 per cent of these there were more or less massive intracranial hemorrhage, a very high percentage involving the ventricles and the cortex. Dr. Ehrenfest raised the question of physiologic trauma. That undoubtedly is a large factor in the premature. In our own cases our highest percentage was seen in the breech deliveries, both spontaneous and by extraction. Cesarean sections were second. Probably the most interesting thing that has come out of the study is that brought out by Dr. George Mohr, psychiatrist, and Dr. Phylis Bartelme, psychologist, who were lent to us for four years by the Institute for Juvenile Research of Chicago. They selected 250 among our oldest graduates. At that time, in 1929, some of them were already 7 years of age, and others were as old as 11 before the study ended. We tried to locate every case in which there was a history of intracranial hemorrhage. A goodly number of those who did not show evidence in the station were found to have some evidence when they returned to the follow-up clinic which made us believe that they had had hemorrhage. We located sixty-nine cases, and of those eleven showed very serious evidence of cerebral involvement. Of the eleven, seven showed marked mental retardation. Of the group with moderate evidence, seven in number, four showed considerable mental deterioration; and in nine mild cases with increased reflexes, strabismus or other minor changes, two showed mental deterioration. In other words, it would have been better if thirteen of sixty-nine among 975 graduates at that time had not survived. Forty-two of the group showed no evidence whatever of intracranial hemorrhage. The work of Dr. Abraham Levinson and Dr. Otto Saphir, clinician and pathologist of our institution, has given us some evidence as to why so many of those sixty-nine, forty-two in number, did not show evidence of trouble. They found, on studying the autopsy material in infants who lived for a considerable number of days or months after birth, that there was very little evidence of organization of the clot. In most instances the original clot, or blood, had been largely absorbed.

DR. M. HINES ROBERTS, Atlanta, Ga.: It is important that every newborn infant receive a careful physical examination at birth, with accurate observations of his behavior from day to day. In my experience, especially in large private hospitals, the newborn infant does not receive this service. Not until he is given the same careful study as that devoted to the older child and adult in any well equipped hospital will true progress be made in diagnosis and treatment of neonatal disorders. The problem of adequate autopsies on infants dying in the neonatal period, and on the stillborn infants, is still one far from solution, even in many of the best obstetric services. In order to influence these mortality figures favorably, it is essential that correct diagnoses be made. Only by careful autopsies can this be done. In reply to Dr. Tyson's question as to whether autopsies were done on infants dying from intracranial hemorrhage in this series, I should like to repeat that in practically every instance the diagnosis was confirmed in this manner. As stated before, in that large group of infants dying with so-called atelectasis or asphyxia, it is probable that 25 per cent would have shown intracranial damage had autopsies been done. Dr. Hess's figures are very interesting and seem to coincide closely with those presented in this study. He states that of the sixty-nine proved cases of intracranial hemorrhage forty-two were found to be normal, whereas, in the group presented to you this afternoon, forty-four of the sixty-six so diagnosed are perfectly normal today.

THE POTENCY OF DIGITALIS PREPARATIONS OF THE 1936 PHARMACOPEIA

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During the past two or three years, several papers and other communications have appeared in medical and pharmaceutic journals calling attention to the increased potency of the digitalis of the Pharmacopeia of 1936 (eleventh revision) as compared with that of U. S. P. X. While the relative potencies that are named in these papers differ among themselves, several of them state that digitalis of the eleventh revision (1936) is from 150 to 170 per cent of that of the tenth (1926) revision. The statement that the official drug of today is stronger than that of ten years ago is true, and there remains to be determined only the approximate increase in this potency.

Before I take this up for consideration it may be well to explain the reason that led to this change in the official requirements. This action was taken primarily to bring about through international agreement a greater degree of uniformity in the strength of certain important drugs and preparations as they are employed in different countries. Much had been accomplished in this direction through the Brussels conferences and the establishment of the "international protocol standards." In addition, in the middle twenties conferences were held under the authority of the Health Committee of the League of Nations, the special object being to consider the adoption of international standards for digitalis and certain other drugs and biologic products for which no uniform method of standardization was available. At the 1925 conference, held in Geneva, a composite powder of digitalis obtained from different sources was adopted as the international standard, and the different countries were urged to make their own national standards conform to the potency of this blended powder. The United States Pharmacopeial Committee of Revision, therefore, adopted this international powder as a standard in the eleventh revision (1936) and authorized the preparation of a standard for this country, its potency being determined in relation to the international powder. I undertook the responsibility of the task, being assisted in the work by Drs. Moyer and Shaw. The powder itself was secured by Professor Cook, chairman of the Revision Committee, and was a mixture of the drug obtained from three sources, two thirds being of American growth, one sixth from England and one sixth from Switzerland.

It will be seen at once that there are two questions involved: first, the relation of the potency of the international standard to the U. S. P. standard of 1926, i. e., ouabain; second, the relative potency of the U. S. P. XI reference or standard powder to the international powder. In the study of the first question it became at once apparent that the U. S. P. digitalis of 1926 was relatively weaker than the international powder, which in itself, being a blend of ten powders, was considered to possess only average strength. Manufacturers who were consulted all said there would be no difficulty in meeting the strength of the international powder, as practically any good drug on the market was of higher strength than the U. S. P. X demanded. For a direct answer to the question, studies which were carried out in this and other laboratories indicated that, as measured against the old U. S. P. X standard ouabain, the international powder was from 125 to 130 per cent of the pharmacopeial requirement of that day. For example, we [1] found by the official method of assay that 1 Gm. of the international powder was equivalent in potency to 1.1 mg. of ouabain, while 1 Gm. of U. S. P. X powder was standardized to equal 0.833 mg. of ouabain. Thus the former was 132 per cent of the latter. Rowe [2] found as a result of five assays a relative activity of 123 per cent for the international standard powder as compared with the U. S. P. X standard, and Smith [3] reported a similar figure of 125 per cent by the cat method.

Thus, based on the international standard, the U. S. P. digitalis powder and tincture since 1936 have been from 25 to 30 per cent stronger than that which had been in use previously. This fact should be clearly understood by all physicians who use digitalis preparations conforming to the U. S. P. standards.

With the first question answered, the main point of the present difficulty was to ascertain how accurately this relative potency of the new digitalis to the old had been achieved. The answer to this question is to be found in the accuracy of the assay of the U. S. P. reference powder in relation to the international standard.

Using the official U. S. P. method of assay, Edmunds, Moyer, and Shaw [4] showed that when this method was employed 0.744 Gm. of the U. S. P. powder was equivalent in potency to 1 Gm. of the international powder. The accuracy of this figure was tested by checking and rechecking the results as enumerated in the original report and finally by preparing alcoholic macerates of the two powders, using 1 Gm. of the international standard powder and 0.744 Gm. of the U. S. P. powder. An assay of these two macerates showed that the potency of the one prepared from the U. S. P. powder was 105.9 per cent of the international standard. These results would indicate that within the limits of error allowable in bio-assays a factor of 0.745 is approximately correct for the U. S. P. reference powder. We confirmed these observations further by assaying the two powders by the four hour frog and the lethal dose methods of assay, employing the appropriate factors in each instance. The results of all these assays carried out on different lots of frogs and at different times of the year did not show a variation from the theoretically perfect 100 per cent of over 6 per cent.

Confirmation of the correctness of this factor (0.745) has been received very recently from Dr. K. K. Chen,[5] who has had wide experience in carrying out the assay of digitalis according to the U. S. P. method. He reports that, following the U. S. P. requirements and using the proper factor for the U. S. P. reference powder, he made between March 23, 1936, and Dec. 14, 1938, twenty-three comparative assays of ouabain, U. S. P. X digitalis and U. S. P. XI digitalis, carrying out the individual assays of the two powders and of ouabain on the same days. The average of all his assays showed a potency of U. S. P. XI digitalis of 126.6 per cent as compared with U. S. P. X. Fifteen of his assays showed a value between 120 and 130, and only three were over 140 (143, 143, 146). In connection with Dr. Chen's results it is noteworthy that the average of the results of Edmunds, Lovell and Braden,[1] Rowe [2] and Smith,[3] namely 132, 123 and 125 per cent, is 126.3 per cent.

Coming now to the cause of the conflicting reports of the potency of the 1936 product it may be pointed out that, in the original preparation of the U. S. P. standard and in the establishment of the necessary factor, great care was used in the conduct of the assays to control as far as possible all the conditions which might have an influence on the results, as it was realized that as soon as the standard was released workers over the country would be rechecking the results, and comments on them would not be long in reaching the medical and pharmaceutic press. Apparently this thought has been realized, and it is my purpose to consider as briefly as possible the three or four papers around which the storm seems to center and to try to locate the cause for the difference in results which has led to the difficulty.

For convenience it might be well to consider first the work by Fahr,[6] since this communication seems to have been the first to call the attention of the practicing physician to the increase in potency of the U. S. P. XI digitalis. Discussion of this paper is rather difficult, as two methods of assay are involved, viz. the one hour frog method and the cat method, and Dr. Fahr in his footnote 5 and in the body of the paper proper, while speaking of cat units, converts results from the frog assays into cat units when he takes the 170 per cent potency reported to be obtained on frogs and makes his cat unit therefore equivalent to 0.065 Gm. instead of the generally accepted 0.100 Gm. of digitalis. In considering this figure of 170 per cent it is necessary to examine the letter of Dr. Wright,[7] as he assayed the digitalis for Dr. Fahr, using the frog method. Wright points out that the U. S. P. X (1926) standard for digitalis required 600 mg. to kill 1 Kg. of frog but that the reference powder of U. S. P. XI (1936), according to twenty assays carried out by him over two and a half years, required only 350 mg., thus giving it a potency of 170 per cent in relation to the U. S. P. X digitalis. Fahr, accepting in general the figure of 170 per cent reported by Wright, sets his cat unit at 0.065 Gm. but in doing so prefers to accept the finding of Edmunds, Moyer and Shaw [4] of 391 mg. instead of Wright's 350 mg. This difference is of minor importance, as neither figure should have been

1. Edmunds, C. W.; Lovell, H. W., and Braden, S.: Studies in Bio-Assays: "The Proposed International Standard for Digitalis," J. Am. Pharm. A. **18:** 778, 1929.
2. Rowe, L. W.: National Standards for Tincture Digitalis with Special Reference to U. S. P. X. and B. P. 1932 Standards, J. Am. Pharm. A. **23:** 104, 1934.
3. Smith, F. A. U.: The International Unit of Digitalis, J. Am. Pharm. A. **20:** 471, 1931.
4. Edmunds, C. W.; Moyer, C. A., and Shaw, J. R.: The United States Pharmacopeial Standard Digitalis Powder, J. Am. Pharm. A. **26:** 290 (April) 1937.
5. Personal communication to the author.
6. Fahr, George: The Treatment of Cardiac Irregularities, J. A. M. A. **111:** 2268 (Dec. 17) 1938; ibid. **112:** 1180 (March 25) 1939.
7. Wright, H. N.: The Potency of Digitalis Standardized According to U. S. P. XI, J. A. M. A. **112:** 1180 (March 25) 1939.

taken, and therein lies the whole trouble. The figure of 391 mg. obtained by Edmunds, Moyer and Shaw [4] (and also the 350 mg. of Wright) is for the toxicity of the reference powder itself and not for the U. S. P. standard. It is well known to all who have worked with this powder that it is stronger perhaps than it should be, and the work of Edmunds, Moyer and Shaw,[4] as already mentioned, established a factor of 0.745 for it, as compared with the 1 Gm. of the international standard for the U. S. P. digitalis unit based on it. If Wright had used 0.745 Gm. as directed instead of 1 Gm., his results would have been very different. While the 350 mg. finding does give a percentage strength of 171 as compared with the U. S. P. X, if the correct amount of the reference powder, viz. 0.745 Gm., had been used he would have a relative percentage strength of 127, which agrees with our estimate of from 125 to 130 per cent.

The second point of difficulty in this paper lies in the use of the term "cat unit," a matter which will be discussed in a later paper. In the footnote mentioned Fahr says that the unit is determined "under the standard conditions of the original Hatcher-Brody method" and further that the unit "by other methods such as the Magnus modification differs considerably." Strangely enough after these statements it appears that Fisher,[5] who made the cat assays for Fahr, does not use the original Hatcher-Brody method at all but the Magnus method or some modification of it, as he has dropped the use of ouabain employed in the original method, using digitalis only. Again Fahr goes on to say that "digitalis is standardized according to U. S. P. XI so that 0.65 cc. of the tincture or 0.065 Gm. of the powdered leaf is one Hatcher-Brody cat unit." This statement is misleading, as the U. S. P. does not mention "cat units" or recognize them in any way. Furthermore, there has not been sufficient study of the relationship between the results obtained by the two methods to make it safe to convert U. S. P. digitalis units into cat units. And yet that is apparently what the author does when he converts the erroneous figure from the frog method into Hatcher-Brody cat units.

To summarize the results in this paper, it appears that when the assay calculations are corrected by using the proper factor they confirm my views that the potency of U. S. P. XI digitalis is from 125 to 130 per cent of the U. S. P. X product; at least there is nothing in the Fahr paper or the associated letter of Wright to prove the contrary.

In certain of the papers that have been written on this subject and in which an excessive potency for U. S. P. XI digitalis is claimed, it may be frankly stated that I have been unable to put my finger on the cause of the discrepancy in results, as in most instances the details of the assay are not given, and it is variations in technic that explain many of the differences found. The paper of Rowe and Pfeifle [8] falls into this category. As a result of eighteen comparative tests of the U. S. P. standard and ouabain by the one hour frog method, they report in their March 1938 paper that U. S. P. XI digitalis is 151 per cent of the U. S. P. X standard, while in the October 1938 paper Rowe [9] reduces this figure to 140 per cent. In the earlier paper, in which a figure of 151 per cent is claimed, it is noteworthy in table I in which U. S. P. XI digitalis is compared with the U. S. P. X ouabain standard that the assays on which the figure (151) is based show strikingly variable results in percentages—from 108 to 186, 188 and even 191 per cent. If a figure somewhere near 108 is correct, what shall be said of the 188 and 191 results or vice versa? Clearly such widely divergent results would call for a careful checking of technic.

In order to study the matter further, Rowe and Pfeifle [8] also assay the international standard—the U. S. P. powder and the Canadian and British standards by the twelve hour or lethal dose method (table IV, page 186). The results of these assays again show that apparently the U. S. P. reference powder is 142 per cent of the international standard. In these assays, however, a most interesting fact appears. In the preparation of their solutions for the assays they use the correction factors to yield tinctures of the same potency as the international on the strength of which the factors are based. But a vital error was made in the case of the U. S. P. powder. Here they use the factor appropriate for the one hour method (0.745) in place of the twelve hour factor (0.5224). This error changed the whole relationship, as is seen in the accompanying tables, the first column of which is taken from the Rowe-Pfeifle paper of March 1938:

The figures in table 1 of the Ann Arbor group for these powders are given in column 3 and are uncorrected or absolute figures for the relative value of the powders, and these are recalculated in column 4, the appropriate factor being used for the twelve hour method. In column 2 the Rowe-Pfeifle figure for the U. S. P. powder has been corrected, the proper factor (0.5224 instead of 0.745) being used for the twelve hour method, and it is seen at once that the Rowe-Pfeifle and the Ann Arbor values for this powder agree exactly, so that using the correct factor Rowe's own figures show that the U. S. P. XI reference digitalis properly adjusted is uniform in potency with the international standard, basing this conclusion entirely on Rowe and Pfeifle's own figures when their error is corrected. Again, in the papers that Rowe and his associates [10] have published on the general subject of the assay of digitalis they have repeatedly insisted on the superiority of the lethal dose method over the one hour official method. Without going into that question, it is interesting to note that their confirmation of our figures is obtained by the method which they themselves prefer. Finally, attention should be drawn to table VI of the Rowe-Pfeifle paper, in which the results that are obtained by the one hour frog method are tabulated. In table 2 are given in milligrams the mean systolic dose per kilogram of frog for the international powder and for U. S. P. XI reference powder and in the second column are the percentages calculated from the Rowe-Pfeifle figures, although these percentages are not given in their paper.

Here again from Rowe and Pfeifle's own figures we have confirmation of the accuracy of our results.

The report by Munch [11] is often quoted as authority for the claim that U. S. P. XI digitalis is 155 per cent of the U. S. P. X product. This is a brief report of a study made in the course of an investigation of a tincture of digitalis which was about eight years old. It was assayed in five laboratories in two different years. The results are rather typical of those seen in such cooperative studies, in which each worker varies

8. Rowe, L. W., and Pfeifle, H. W.: The U. S. P. XI Standard for Tincture Digitalis, J. Am. Pharm. A. **27**: 182, 1938.

9. Rowe, L. W.: Further Evidence of the Strong and Variable Action of the U. S. P. XI Digitalis Standard, J. Am. Pharm. A. **27**: 844, 1938.

10. Rowe (footnotes 2 and 9) Rowe and Pfeifle.[8]

11. Munch, J. C.: Report for the Committee on Physiological Testing, J. Am. Pharm. A. **26**: 1096, 1937.

the assay according to his wishes, so that in this instance the ratios of activity run from 110 per cent to 213. Such a wide spread of results in itself casts much doubt on the results. If 110 per cent is approximately correct, what about 213 or vice versa? One laboratory reported a potency in 1936 of 90 per cent of U. S. P. X and 160 per cent for the same tincture in 1937 and a similar percentage increase when tested against the U. S. P. XI standard. No other laboratory presented figures approaching these. Briefly, in the absence of further details as regards technic and in view of the marked discrepancies, the report cannot be said to add to our knowledge of the question. In fact it is more likely to confuse the issue, as the statement of excessive potency is quoted as an average of widely divergent figures, some of which are obviously incorrect, and without an examination of the figures which underlie the statement.

TABLE 1.—*Results of Assays of Digitalis*

	Rowe and Pfeiffle U. S. P. Powder Calculated		Edmunds, Moyer & Shaw	
	By Use of Incorrect Factor 0.745	By Use of Correct Factor 0.5224	Uncorrected Figures	Corrected by Factor 0.5224
International standard considered as.....	100%	100%	100%	100%
U. S. P.	142%	99.5%	191%	100%

The study by Ichniowski and Thompson [12] is an important contribution to the subject of the assay of digitalis, although as it appears in the *Journal of the American Pharmaceutical Association* it is merely an abstract of a thesis presented as part of the requirement for an advanced degree. The last portion of the paper gives a comparison of the potency of certain digitalis extracts when related to U. S. P. X and XI. The preparations were assayed against ouabain, the standard employed in U. S. P. X, and against the U. S. P. XI powder, with the conclusion drawn that the U. S. P. XI digitalis potency is 153 per cent of the U. S. P. X potency. In table X of the paper three assays of the unmodified U. S. P. powder are assayed against the same powder adjusted to proper strength by employing the factor 0.745, and in each instance the results show that the former is 134 per cent of the latter. Our results [4] give it an assigned value of 134.22 per cent. Two assays of the Canadian powder show that it is 115 per cent of the U. S. P. standard, which practically agrees with our finding of 115.77 per cent, ignoring the slight difference of 3 mg. in the factor of the two Canadian powders. These assays of the Canadian powder, which were made against the U. S. P. XI reference powder with the proper factor, then agree with our results. The other items in table X are various digitalis extracts on which I have no figures, so that a comparison is impossible. With the accuracy of technic and of the assay method attested by the results of the assay of the unmodified U. S. P. powder and of the Canadian powder, the explanation of the high ratio of potency of 153 must be sought in the assays carried out against ouabain—the standard of U. S. P. X. Here one is struck at once by the statement that the U. S. P. reference power is 200 per cent of the U. S. P. X standard. This figure is exceedingly high, in fact higher than has been reported by any other worker so far as I know. This figure is based on four assays in which 100 mg. of the U. S. P. powder were found to be equivalent in potency to 0.168 mg. of ouabain, whereas the standard equivalent for 100 mg. of the 1926 digitalis was 0.083 mg. There are no figures in which the U. S. P. reference powder was compared directly with ouabain, but there are such figures for the international powder, and then, when one knows the relation of the U. S. P. to the international standard, it is easy to make the computation.

In our original study [1] of the international powder we found that 100 mg. was the equivalent of 0.11 mg. of ouabain, a finding essentially confirmed by Rowe [2] and by Smith.[3] The U. S. P. reference powder being 134 per cent of the international, 100 mg. of the U. S. P. reference powder would be the equivalent of 0.147 of ouabain, and its relative potency to the U. S. P. X would be 177 instead of 200, as claimed in table X. On the basis of this, the U. S. P. XI standard is 132 per cent of U. S. P. X. Such a relationship would bring the Ichniowski-Thompson results into entire harmony with the others quoted, obtained either directly or by recalculation.

Finally, a report made to the American Drug Manufacturers Association by Taylor,[13] chairman of the Committee on Digitalis, at its 1938 meeting, may be quoted. Taylor sent to each of ten laboratories an ampule of the international powder and one of the U. S. P. XI reference powder, asking that the two be assayed according to the official method in the U. S. P. XI with the appropriate factor of the U. S. P. powder, which of course makes the U. S. P. unit of the same strength as the international. Five of the laboratories reported an average strength of 101.3 per cent, or within 1.3 per cent of theoretical perfection. The other five had various results ranging from 107 to 136, averaging 134.9 per cent. The unanimity of the first five workers far outweighs in importance the results of the second group. The same difficulties and discrepancies which have been seen in all the previous cooperative assay results again creep in here, and I cannot help but endorse the sentiments expressed by Beal [14] in discussing the same report that "we need some method of investigating the investigators" in order to see what variations are made in the technic of the assays and which are accountable for the great discrepancies in results. Such departures from the prescribed technic doubtless are responsible for the discordant results of the cooperative report just quoted (as well as for the discrepancies in the Munch report quoted earlier), in which five workers come within 2 per cent of the theoretical figures while the other five range all the way from 107 to 136 per cent. It does not seem to be realized that it takes just as much experience, skill and attention to details to make an assay by biologic means as by chemical.

TABLE 2.—*Percentage of International Standard*

	Milligrams Systolic Dose per Kilogram	Percentage of International Standard
International standard 1926.....	619	100
U. S. P. XI.....	463	133.7

In the present study it has been conclusively shown that just such mistakes have been responsible for most,

12. Ichniowski, C. T., and Thompson, M. R.: The Bio-Assay of Digitalis with Observations on the *p*H Factor, J. Am. Pharm. A. **27**: 540, 1938.

13. Taylor, F. O.: Report of the Subcommittee on Digitalis of the Pharmaceutical Contact Committee, Proc. Am. Drug. Mfg. A., 27th meeting, 1938, p. 240.

14. Beal, G. D., in discussion, Proc. Am. Drug Mfg. A., 27th meeting, 1938, p. 256.

if not all, of the very disquieting statements which have been made regarding the potency of U. S. P. XI digitalis in comparison with the tenth revision product. Some of these extravagant statements have been disturbing to the practicing physician, and they have led to numerous inquiries as to their accuracy. One result that may evolve from this inquiry is that it will emphasize again the fact that the potency of official digitalis preparations has been raised from 25 to 30 per cent so as to meet international standards, and this fact must be taken into consideration, especially by the physician who wishes to induce rapid digitalization in a patient by the use of large doses given at relatively short intervals.

Finally, it may be well to point out that the Pharmacopeia specifically directs that digitalis must exhibit a certain potency when assayed by the official one hour frog method, and any contention which is based on the use of other methods of assay therefore does not come into consideration as far as U. S. P. XI digitalis is concerned.

CONCLUSION

U. S. P. XI digitalis is from 25 to 30 per cent stronger than the digitalis of the 1926 U. S. P. X. This change was made by the adoption of the international standard powder as a standard for the United States in order to secure as far as possible international uniformity in the potency of this drug.

Statements to the effect that the strengh has been increased from 50 to 70 per cent are erroneous and are based in most, if not all, instances on faulty calculations or technic, or both.

COMPLICATIONS FOLLOWING THE ADMINISTRATION OF SULFANILAMIDE

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Symptoms of mild toxicity such as malaise, lassitude, weakness, headache, dizziness, depression, anorexia and nausea are frequently encountered in patients receiving sulfanilamide. Less commonly tinnitus, mental confusion, paresthesias, dyspnea, inability to concentrate, diarrhea, constipation and vomiting are observed. In unusual instances there is difficulty in micturition, slowing of the stream and loss of force. Lowering of the carbon dioxide combining power is not uncommon. With rare exceptions, the drug can be given despite these manifestations.

CYANOSIS

Some degree of cyanosis is present in 90 per cent of the cases in which the drug is used. It varies from a mild bluing of the lips or nail beds to an intense slaty discoloration of the entire body. It usually appears shortly after treatment is started, may disappear during the course of treatment and uniformly disappears within a few days after the use of the drug is stopped.

The cyanosis is due to one of three substances in the blood: methemoglobin, sulfhemoglobin or an as yet unidentified pigment. The highest value for methemoglobin observed at Cleveland City Hospital in over 200 determinations was 6.3 Gm. per hundred cubic centimeters of blood. This patient had a total hemoglobin value of 17.0 Gm. per hundred cubic centimeters of blood and even with 6.3 Gm. of hemoglobin combined as methemoglobin the patient still had an adequate amount (10.7 Gm.) of oxyhemoglobin. Unless anemia is present it appears that methemoglobinemia is not a serious complication.

Sulfanilamide and sulfates have not been given simultaneously because of the possibility of producing sulfhemoglobinemia. In no case in which sulfhemoglobin has appeared has the amount been significant.

FEVER

Fever due to the drug occurs in about 10 per cent of the cases in which sulfanilamide is used. It usually appears about seven days after the use of the drug has been started, although it may occur at any time during the course of therapy. It is usually high and may be intermittent in type and accompanied by chills, presenting a clinical picture like that of septicemia. The fever subsides in from twenty-four to seventy-two hours after the use of the drug has been discontinued.

The following case exemplifies the development of drug fever:

CASE 1.—A Negro man aged 31 was given sulfanilamide because of a chancroid infection of the penis. He was afebrile and his general health was excellent. On the seventh day the temperature was 38 C. (100.4 F.), the eighth day 38.5 C. (101.3 F.), the ninth day 39.5 C. (103.1 F.) and the tenth day 40 C. (104 F.). The patient was prostrated, perspired profusely and was acutely ill, although the physical examination otherwise was negative. The use of the drug was discontinued, a total of 33⅓ Gm. (500 grains) having been administered, whereupon the fever began to fall and the patient improved. In seventy-two hours he was asymptomatic and the temperature was normal.

Abrupt and violent febrile responses occasionally have appeared after the first dose of the drug, possibly more often in patients who previously have suffered toxic reactions, as in the following case:

CASE 2.—A white man aged 32, a physician, took sulfanilamide for chronic sinusitis. After seven days of treatment, fever appeared. On the eighth day he was acutely ill, with a scarlatiniform rash and a temperature of 40 C. (104 F.). A total of 22 Gm. (330 grains) of sulfanilamide had been taken. The question was whether he had a rash and fever due to sulfanilamide or to scarlet fever. Use of the drug was discontinued and in thirty-six hours the temperature was normal, the rash had disappeared and the patient was better.

The diagnosis was not certain and to avoid the usual period of quarantine for scarlet fever, it was decided to attempt to demonstrate sensitivity to sulfanilamide. The patient received 0.3 Gm. (5 grains) of the drug and within thirty minutes he had shaking chills, vomited repeatedly and was acutely ill. The temperature rose abruptly from normal to 39.5 C. (103.1 F.) and the pulse rate from 70 beats per minute to 140. The skin showed a slight red blush. Twenty-four hours elapsed before the patient felt better and before the temperature had returned to normal.

It can be concluded that fever appearing in patients receiving sulfanilamide for a disease which is ordinarily afebrile should be regarded as a complication of the therapy until proved otherwise. It is a more difficult problem to recognize drug fever in patients suffering from a febrile disease. Under such circumstances the fever can be ascribed to sulfanilamide if (1) the original disease has reached an afebrile stage and (2) the temperature returns to normal after the use of the drug has been discontinued. Fever due to sulfanilamide is

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an indication to stop the use of the drug, particularly since fever in many instances is the first sign of other more serious complications.

CUTANEOUS LESIONS

Cutaneous lesions due to sulfanilamide have occurred in about 4 per cent of the patients receiving the drug. Most of these have been morbilliform, a lesser number scarlatiniform. The eruptions have been so characteristic of measles and scarlet fever that many of these patients have been admitted to the contagious division of the hospital. These rashes were differentiated from those of measles and scarlet fever by the absence of other associated signs: the sore throat of scarlet fever, the coryza of measles, and so on. In six instances the morbilliform or scarlatiniform dermatitis has progressed into an exfoliative dermatitis, a serious complication. In a small number of cases urticaria, purpura and photosensitivity have been observed.

The cutaneous manifestations due to sulfanilamide are not necessarily the result of overdosage or high blood levels of the drug. In one patient a scarlatiniform skin eruption appeared on three separate occasions, following the administration of single 0.3 Gm. (5 grains) doses of sulfanilamide.

ANEMIA

Sulfanilamide may produce an acute or a chronic type of hemolytic anemia. The chronic type is common, mild in degree and slow in development, the hemoglobin falling from 10 to 20 per cent during the course of treatment. The urine occasionally contains urobilinogen, although jaundice is not present. Such cases are easily managed.

Cases of acute hemolytic anemia pursue a different course. Within one to three days after treatment has been begun and even after relatively small doses of the drug, the red blood cell count and the value for hemoglobin fall abruptly, the red blood cell count in some instances as much as from one half to even one million in a day. A variable degree of leukocytosis, reticulocytosis, bilirubinemia, urobilinuria and fever are present. In such cases immediate withdrawal of the drug, blood transfusion and forcing of fluids are life-saving measures.

GRANULOCYTOPENIA

Granulocytopenia is a serious complication and has been encountered in four cases at Cleveland City Hospital in the period from July 1937 to December 1938 inclusive. These cases have been indistinguishable clinically and pathologically from those due to other etiologic agents. Usually the first clinical sign observed was fever, either as a precursor or as a part of the disease, again indicating that fever occurring during sulfanilamide treatment must be fully investigated. The wisdom of frequent examinations of the blood becomes apparent after considering these cases.

The first case was reported in detail[1] and only a brief summary of it is given here:

CASE 3.—A white man aged 32 had received 56 Gm. (840 grains) of sulfanilamide for a chancroidal ulcer, when the white blood cell count, which was previously normal, was found to be 3,900 per cubic millimeter of blood. The count rapidly dropped to 300 and a differential count showed the cells to be all lymphocytes. The red blood cell count dropped to 3,500,000 per cubic millimeter. The patient had a high fever, became very ill and finally showed ulcerative pharyngitis. Therapy consisted of the administration of pentnucleotide, intramuscular liver and blood transfusion, but the patient died eight days after the onset of the granulocytopenia. At autopsy the myeloid series of the marrow showed maturation arrest with stem cell hyperplasia and absence of more mature cells, conditions characteristic of granulocytopenia.

The second case of granulocytopenia illustrates the fact that drug fever may precede more serious complications. Though the fever dropped when the use of the drug was discontinued, it was followed six days later by a fulminating acute granulocytopenia.

CASE 4.—W. P., a Negro man aged 30, entered the hospital Feb. 24, 1938, because of gonorrheal arthritis of the left knee. At this time the leukocytes numbered 21,100 and the erythrocytes 5,000,000 per cubic millimeter of blood. Sulfanilamide therapy was started February 26.

The knee showed considerable improvement, but on March 9, the twelfth day of sulfanilamide treatment, the temperature, which had varied between normal and 38 C. (100.4 F.), gradually rose to 39.5 C. (103.1 F.). The use of the drug was stopped on March 11, at which time a total of 66 Gm. (990 grains) had been administered, and the temperature rapidly fell to normal. No other medication had been given. On March 17, six days after the use of the drug was discontinued, fever again appeared and during the next five days reached 41.5 C. (105.7 F.). Coincidentally the patient became increasingly ill. On March 21 ulcerative pharyngitis appeared. The white blood cell count was 1,350 per cubic millimeter of blood and the erythrocytes numbered 3,250,000. Differential study showed 20 per cent of the leukocytes to be polymorphonuclear cells. Pentnucleotide therapy was started.

The following day, March 22, the white blood cell count was 7,400 per cubic millimeter. Smear study showed the leukocytes to be 46 per cent polymorphonuclear cells. There was evidence of myeloid immaturity and severe toxicity. Despite the fact that the number of granular cells had increased, the patient's general condition was worse. Various stimulants and a blood transfusion of 450 cc. of citrated blood were given without effect. The patient died that same day.

The body was embalmed eight hours post mortem and an autopsy was done thirty-six hours later. The skin and scleras were normal except for pallor. There were a few small, firm inguinal and cervical lymph nodes. Microscopic examination of these nodes showed reticulum cell hyperplasia with mobilization of the cells to form free monocytoid forms.

The tonsils, the pharynx and trachea showed a hyperemic, irregularly mottled, grayish red mucosa covered by a patchy, gray exudate. Microscopic studies of the tonsils and larynx showed focal areas of superficial ulceration and necrosis with slight lymphocytic infiltration. The lower lobes of the lungs contained several small grayish red, granular areas of consolidation which microscopically were extravasated edema fluid and red blood cells. The joint space of the left knee contained a small amount of cloudy, yellow fluid. The internal surface of the capsule was hyperemic and edematous but showed no exudate. The articular surfaces of the bones showed no significant change. The right knee joint was normal.

The marrow of the sternum and the vertebrae presented the usual dull red, trabeculated tissue. The right humerus and femur throughout their entire length showed a yellow, fatty marrow with small focal, interspersed areas of dull, grayish red friable tissue. Sections from the sternum, vertebra, rib, humerus and femur were stained by the hematoxylin and eosin, oxidase and Wright's method. The myeloid cells showed a distinct shift to the left, with a reversion to the stem cell type. There were occasional myeloid cells with granules and a small number of polymorphonuclear cells. There was a distinct increase in the reticulum cells. The red cell series showed no significant change.

The next case illustrates that granulocytopenia, like other toxic manifestations, may occur early in the course of therapy and after small amounts of the drug

1. Schwartz, W. F.; Garvin, C. F., and Koletsky, Simon: Fatal Granulocytopenia from Sulfanilamide, J. A. M. A. **110:** 368-370 (Jan. 29) 1938.

have been administered. Depression of the bone marrow in this case lasted longer than usual.

CASE 5.—A white woman aged 57 was admitted to the hospital because of erysipelas of the face. The white blood cell count was 11,000 per cubic millimeter, 58 per cent of the cells being polymorphonuclear leukocytes. The red blood cell count was 4,250,000 per cubic millimeter. During the next three days the patient received a total of 15 Gm. of sulfanilamide. No other drug was administered. The use of the sulfanilamide was discontinued when the white blood cell count was found to be 3,000 and the red blood cell count 3,500,000. In the next three days the number of leukocytes dropped to 2,000 per cubic millimeter, 75 per cent of the cells being lymphocytes, and the erythrocytes to 2,500,000. Despite these blood changes the patient had no complaints except weakness. Her general condition was good. No ulcerative pharyngitis developed. She was given 40 cc. of pentnucleotide daily for five days and 10 cc. of liver extract daily for six days. The leukocytes started to increase in number and granular cells gradually reappeared but improvement was slow. When the patient left the hospital three weeks later the leukocytes numbered only 4,200 per cubic millimeter, but 63 per cent of the cells were polymorphonuclears.

Another case of granulocytopenia again illustrates that drug fever may precede more serious complications and that granulocytopenia may appear several days after the use of sulfanilamide has been discontinued, at a time when complications are not expected:

CASE 6.—A white woman aged 22 received sulfanilamide because of a puerperal endometritis. The white blood cell count during the first nine days of treatment varied between 11,000 and 16,000 per cubic millimeter. After sulfanilamide had been given for seventeen days, the patient having received 100 Gm. of the drug, it was thought that the temperature was remaining high because of the drug rather than the infection, which was much improved. This was true, for when the administration of the drug was stopped the temperature fell from 40 C. (104 F.) to normal in forty-eight hours, and by the following day the patient was asymptomatic. The next day, however, the temperature started to rise and reached 41 C. (105.8 F.) within the next forty-eight hours. The patient was acutely ill and, in the belief that she had a recurrence of her infection, therapy was resumed, the blood not being examined at this time. In the next twelve hours 15 Gm. of sulfanilamide was administered, after which the red blood cell count was found to be 3,000,000 per cubic millimeter and the white count 400, all lymphocytes. The use of the sulfanilamide was discontinued, fluids were forced, and intramuscular liver, pentnucleotide and blood transfusion were given. White blood cell counts on the succeeding five days were 400, 2,000, 2,600, 4,500 and 6,600 per cubic millimeter. The patient was desperately ill but made a complete recovery, clinical and hematologic improvement paralleling each other. Ulcerative pharyngitis was not present at any time.

CEREBRAL COMPLICATIONS

Only occasionally have patients suffered toxic psychoses of such severity that the use of the drug had to be discontinued. These have appeared either after long, continued administration or after comparatively small doses.

The following case illustrates a marked cerebral reaction due to relatively small amounts of sulfanilamide:

CASE 7.—A white girl aged 28 was admitted to the hospital because of erysipelas of the face. Sulfanilamide therapy was ordered as follows: 4 Gm. at once and 1.3 Gm. every four hours thereafter for twelve doses. A peculiar phenomenon occurred. From ten to fifteen minutes after receiving the drug the patient became so irrational, disoriented and excited as to require full restraints. Each episode lasted from two to three hours, after which the patient was again normal and had no recollection of what had happened. This occurred after each dose of the drug, so that its use had to be stopped.

HEPATITIS

Another serious complication of sulfanilamide treatment which has been encountered at Cleveland City Hospital is toxic hepatitis, five such cases having been previously reported in detail.[2] One case was extraordinary in that there was simultaneous occurrence of jaundice and ascites with recovery. Arsphenamine, mercurial products, phosphorus, sodium gold thiosulfate, cinchophen, common duct stone, pressure of glands on the common duct and infections are the agents which have been previously reported as being capable of so damaging the liver as to produce jaundice and ascites and yet permit recovery. Sulfanilamide can be added to this list.

SUMMARY

Symptoms of mild toxicity due to sulfanilamide such as malaise, lassitude, weakness, headache, dizziness, anorexia, nausea, slightly lowered carbon dioxide combining power and slight to moderate cyanosis or dyspnea need not cause concern.

Moderately severe symptoms of toxicity such as deep cyanosis, marked dyspnea, distinctly lowered carbon dioxide combining power, severe vomiting, diarrhea, abdominal pain, itching of the skin and slowly developing anemia indicate vigilance and possibly a reduction of dosage.

Symptoms of severe toxicity such as fever, dermatitis, acute hemolytic anemia, leukopenia, psychosis or jaundice demand immediate discontinuance of the use of the drug.

To avoid toxic manifestations one should observe the patient closely, examine the blood daily, avoid the use of sulfates and other drugs, and not use sulfanilamide in patients with anemia, leukopenia or hepatic damage.

The treatment of these toxic manifestations consists of the immediate withdrawal of the drug, bed rest, forcing of fluids, blood transfusion and such miscellaneous measures as are indicated; i. e., yellow bone marrow extract, pentnucleotide, intramuscular liver, iron, oxygen, methylene blue, sodium lactate, Ringer's solution, dextrose and insulin.

ABSTRACT OF DISCUSSION

DR. FRANCIS G. BLAKE, New Haven, Conn.: My experience with untoward reactions in sulfanilamide has been quite comparable to that described by Dr. Garvin. I have encountered two untoward reactions which he did not mention: (1) thrombopenic purpura in one case relatively mild, promptly recovering under transfusion, in another quite severe with purpura in the skin, bleeding from the kidneys and mucous membranes, bloody pleural effusion and presumably hemorrhage about the optic nerve, causing blindness in one eye; (2) focal hemorrhage without thrombopenia. This is not rare in the retina and has been described in the literature. In addition, I have had four patients in whom severe focal hemorrhages occurred, possibly caused by sulfanilamide: in two instances gross intestinal hemorrhage, in two instances cerebral hemorrhage. In none of these four patients was there any other plausible explanation for the untoward reaction. It is particularly fortunate that Dr. Garvin stressed drug fever. It is easy to recognize drug fever when it occurs after an interval of four or five days of normal temperature, although even under these circumstances it has frequently been mistaken for a recurrence of the infection, and drug treatment resumed. Since I believe drug fever may be a warning of more serious reactions to follow, I would take the view that whenever there is a sudden rise in temperature,

2. Garvin, Curtis F.: Toxic Hepatitis Due to Sulfanilamide, J. A. M. A. **111:** 2283-2285 (Dec. 17) 1938.

after a period of normal temperature or a sudden exacerbation of fever, it is incumbent on the physician to establish the fact that the recurrent fever is due to infection before he resumes the use of sulfanilamide. Dr. Garvin illustrated the use of the test dose of sulfanilamide in a patient who had had a previous drug fever with scarlatiniform rash. How often do individuals who have previously had one of these untoward reactions have an accelerated untoward reaction if treated again with sulfanilamide? Information concerning this is not yet adequate, but I think experience already indicates that this is at least a fairly common phenomenon. Because of this I believe it wise to inquire whether a patient has previously had sulfanilamide and if so whether there have been untoward reactions, before using sulfanilamide for a new infection. I should like to ask Dr. Garvin whether he uses sulfanilamide in relatively mild infections. In mild streptococcic pharyngitis and tonsillitis, for example, I am hesitant about using the drug in a routine manner because of the seriousness of some of the untoward reactions.

DR. EDWIN G. BANNICK, Seattle: In view of the steadily increasing usage of sulfanilamide, Dr. Garvin's paper is well chosen, and the data he presented have much clinical value. One must constantly be on guard lest these drugs be injudiciously used. Dr. Garvin has outlined those symptoms of mild toxicity which ordinarily cause little concern, those of moderately severe toxicity which indicate vigilance and often reduction of dosage or discontinuance of the drug, and those symptoms of severe toxicity which usually demand immediate withdrawal of the drug and corrective therapy. With this grouping I heartily concur. It is important to call attention again to the latter group and to emphasize repeatedly that nearly all fatalities occurring as a result of the administration of sulfanilamide have been due to the production of either a severe hemolytic anemia, granulopenia or toxic hepatitis. The other symptoms mentioned are important chiefly because they indicate varying degrees of intolerance to the drug and therefore serve as warning signs to the physician but are of themselves not a cause of death. I believe that the severe toxic manfestations of sulfanilamide occur as a result of either idiosyncrasy or sensitivity. Those due to idiosyncrasy are usually the most dangerous and occur quite promptly and often without warning and therefore must be watched for. Every patient receiving sulfanilamide should be closely observed and should have a blood count made daily until the fact is established that he has no idiosyncrasy to the drug. Although most reactions due to idiosyncrasy are independent of dosage, nevertheless I have always preferred not to use the large initial doses advocated by some writers unless the severity of the infection demands immediate and heroic treatment, in which case, of course, it is advisable to take a chance and get an optimal concentration of sulfanilamide in the blood as soon as possible. In most cases in which the drug is used, however, it seems wiser to proceed a little more slowly and then, if there is no idiosyncrasy, the dosage can be quickly raised to the point of therapeutic effectiveness, as in cases of hemolytic streptococcus meningitis or septicemia, but not in the treatment of gonorrhea. Toxicity due to sensitivity or to prolonged administration of the drug may also be very serious, but under these circumstances there is usually some warning of intolerance, such as fever, dermatitis, jaundice or gradually developing anemia or leukopenia, and the toxicity can usually be corrected before the more serious and fatal complications have occurred. But these symptoms must be looked for and not ignored.

DR. B. K. WISEMAN, Columbus, Ohio: I think that Dr. Garvin's statement with reference to the danger of giving sulfanilamide when a leukopenia exists needs amplification. I do not consider that a reduced white cell count is necessarily a contraindication to the employment of this drug. There are, relatively, only a small number of individuals who manifest an idiosyncrasy to sulfanilamide and it is only in this group that a specific granulopenia or hemolytic anemia will develop. The initial, presenting level of white blood cells does not indicate or predispose to the fundamental tissue susceptibility which makes possible an agranulocytic syndrome. For example, undulant fever is often characterized by a leukopenia but can be successfully treated with sulfanilamide in full therapeutic doses without adverse effect on the blood forming tissues or the development of a further granulopenia. I have used sulfanilamide without restriction as to dosage in a variety of pathologic states in which there has been an initial leukopenia and have seen no case of granulopenic syndrome develop under such circumstances. In the last analysis, the mechanism that produces the leukopenia must determine whether sulfanilamide is or is not contraindicated. If the leukopenia is the result of depression of myeloid tissue in the bone marrow or the destruction of white cells in the peripheral blood from, for example, bacterial toxins, exhibition of sulfanilamide will not further damage the bone marrow or destroy cells in the blood stream except in that small group before mentioned composed of individuals who are specifically hypersensitive to the drug. If, on the other hand, leukopenia supervenes after the administration of the drug, one should conclude in the interests of safety to the patient that the mechanism responsible for the lowering of the white count is one of specific hypersensitiveness to this class of drugs, and this type of medication should be withdrawn at once. To withhold sulfanilamide purely on a criterion of leukopenia without consideration of the cause of the leukopenia is in my opinion not sound practice and may in certain circumstances be equivalent to withholding a life-saving measure.

DR. CURTIS F. GARVIN, Cleveland: Dr. Blake asked whether I believed in administering sulfanilamide in cases of streptococcic pharyngitis and streptococcic tonsillitis. I do not. I agree that the drug should not be given for relatively mild infections. I also agree with Dr. Wiseman that, although leukopenia is present, the drug can be given if a sufficient indication is present and if special care is used.

FATAL HEMOLYTIC ANEMIA FOLLOWING THE ADMINISTRATION OF SULFANILAMIDE

SIMON KOLETSKY, M.D.
CLEVELAND

Acute hemolytic anemia is now a well known complication of sulfanilamide therapy. So far only one fatality has been recorded.[1] This report describes a second fatal case.

REPORT OF CASE

Clinical History.—H. B., a Negro woman aged 64, admitted to University Hospitals Jan. 10, 1939, in the service of Dr. W. B. Chamberlin, to whom I am indebted for permission to report this case, complained of pain in the right ear. For two weeks prior to admission she had had an infection of the upper respiratory tract and sore throat with malaise and anorexia. Four days before admission pain developed in her right ear; this was followed by a thin discharge from the ear. The pain became worse and at the time of admission it was constant and throbbing.

The patient was known to have syphilis and had received antisyphilitic therapy in the outpatient department of the Lakeside Hospital from 1928 to 1930. This consisted of a total of thirty arsenical and sixty bismuth treatments. She gave a history of three miscarriages and no normal births.

Physical Examination.—The temperature was 38.5 C. (101.3 F.), pulse 100, respiratory rate 20 and blood pressure 170 systolic, 100 diastolic. The patient was well nourished and not seriously ill. There was no pallor or icterus. Except for the right ear and mastoid area there were no significant physical abnormalities. The pharynx and tonsils did not appear to be inflamed.

The right tympanic membrane was reddened and showed a perforation in the postero-inferior quadrant. A thin serous

From the Institute of Pathology, Western Reserve University School of Medicine and University Hospitals.

1. Wood, Harold: A Fatality from Acute Hemolytic Anemia Which Developed During the Administration of Sulfanilamide, South. M. J. **31**: 646-648 (June) 1938.

exudate was present in the external auditory meatus. There was distinct tenderness over the mastoid area and pain on manipulation of the auricle.

Hospital Course.—X-ray films of the mastoids showed bilateral sclerosis of the bone and evidence of acute inflammation on the right side. On the day after admission (January 11) a right simple mastoidectomy was performed. The cortex of the bone was hard and eburnated. There was slight destruction of the walls of the mastoid air cells; many of the large cells, especially in the tip of the mastoid, contained a purulent exudate. Most of the cells were removed. Neither the lateral sinus nor the dura was exposed. The patient stood the procedure well.

The next two days (January 12 and 13) there was a slight purulent discharge from the wound and a moderate elevation of temperature. The patient's general condition was good. When the culture of the pus from the mastoid revealed pneumococcus type III it was decided to use sulfanilamide. The oral administration of the drug was started January 13 and the dosage was 1.33 Gm. every four hours. She received 1.33 Gm. on January 13, 8 Gm. on each of the next two days and 6.7 Gm. on January 16, when the drug was discontinued. The total dosage was 24 Gm. The accompanying table shows the important data in relation to the development of acute hemolytic anemia.

On admission (January 10) the red blood cell count was 3.6 million and the hemoglobin 85 per cent (Sahli). January 14, the second day of sulfanilamide therapy, the red cells numbered 2.6 million and the hemoglobin content was 65 per cent. The next two days the patient's condition became much worse, although the mastoid wound was healing well and there was no evidence of any complication. She complained of headache and dizziness and was disoriented. There was distinct icterus of the scleras. January 16 her temperature rose to 38.8 C. (101.8 F.) and examination of the blood revealed a red blood cell count of 1.45 million, a hemoglobin of 45 per cent and a leukocyte count of 24,300. The sulfanilamide was then discontinued.

During the next two days the patient became drowsy and lethargic. January 17 the red blood cell count was 1.6 million and the hemoglobin 38 per cent. Donors for a blood transfusion could not be obtained. She was given liver extract by vein and infusions of physiologic solution of sodium chloride and dextrose. Death occurred in coma January 18, the eighth hospital day and the sixth day after the onset of sulfanilamide therapy.

Course of Illness

Date, January, 1939	10	11	12	13	14	15	16	17	18
Hospital day	Admission	1 Mastoidectomy	2	3	4	5 Icterus	6 Icterus	7 Icterus	8 Death
Sulfanilamide dosage, Gm.	....	....	....	1.33	8	8	6.7	....	....
Red blood cells, million	3.04	....	....	....	2.6	....	1.45	1.6	....
Hemoglobin, per cent (Sahli)	85	....	....	....	65	....	45	38	....
White blood cells	12,500	....	....	....	10,250	....	24,300	22,200	....
Temperature (rectal) C.	38.5	37.6	38.8	38	37.6	37.6	38.8	38	37.5

Treatment on sixth and seventh hospital days 5 cc. of liver extract by vein once each day

Treatment on sixth, seventh and eighth hospital days 750 cc. of physiologic solution of sodium chloride and 750 cc. of 10 per cent dextrose intravenously once each day

Laboratory Examinations.—Urinalysis was negative. The Kline diagnostic and exclusion tests were 4+. The Wassermann reaction was negative. The icteric index (January 17) was 18. Blood smear (January 17) showed marked antisocytosis and poikilocytosis. The differential leukocyte count was 68 per cent polymorphonuclear neutrophils, 4 per cent myelocytes, 1 per cent eosinophils, 19 per cent lymphocytes and 8 per cent monocytes. Other laboratory results are given in the table.

Autopsy.—A postmortem examination was performed six hours after death. Moderate jaundice of the scleras was present and the internal organs showed marked pallor and jaundice.

There was only a slight purulent exudate at the operative site in the right mastoid, and this was adequately drained to the exterior. The inflammation involved the tympanic antrum but not the tegmen tympani or the overlying dura. There was no leptomeningitis, and the venous sinuses of the dura contained no thrombi. The left middle ear and mastoid cells, and the paranasal air sinuses of the skull showed no exudate. The brain showed no gross or microscopic lesion.

The heart weighed 350 Gm. and showed no significant gross or microscopic change. The lungs were the seat of marked hyperemia and edema, and both lower lobes showed a slight and early hypostatic bronchopneumonia.

The liver was a flabby, pale brownish red organ weighing 1,050 Gm. Microscopically the liver cells were well preserved. The Kupffer cells were large and prominent and contained much finely granular, yellowish brown pigment which was shown to contain iron by special stain. Some of the liver cells also gave a positive reaction for iron-bearing pigment.

The spleen was flabby and weighed 125 Gm. It presented a bright red bulging cut surface, and malpighian corpuscles were not readily identified. Microscopically there were hyperemia and edema of the pulp, which showed numerous large mononuclear cells filled with iron-containing pigment.

The kidneys weighed 110 Gm. each and were similar in appearance. They were the seat of arteriolar nephrosclerosis. Microscopically some of the collecting tubules contained clumps of coarse, yellowish brown material. A similar granular pigment was present within the cytoplasm of some of the cells lining these tubules. Special stain for iron was negative.

The sternum, ribs and vertebrae presented a homogeneous light red marrow. The entire shaft of the right femur and the middle half of the right tibia and of the right humerus were composed of yellow fatty marrow. Microscopic sections of a vertebra, of the sternum and of a rib were studied with hematoxylin and eosin and Giemsa stains and showed a similar picture. The cellularity of the marrow was within normal limits. There was distinct erythropoietic hyperplasia. The average differential of counts of 500 cells from each of the three sections was erythroblasts 17 per cent, normoblasts 25 per cent, myeloid cells (which were chiefly of myelocytic and early metamyelocytic form) 46 per cent, stem cells 12 per cent. The usual number of megakaryocytes was present.

The adrenals, pancreas and gastrointestinal tract showed no significant change.

The final pathologic diagnoses were hemolytic anemia (iron pigmentation of the liver and spleen, pallor of the viscera and generalized icterus), erythropoietic hyperplasia of the bone marrow, early hypostatic bronchopneumonia, pulmonary edema, acute suppurative mastoiditis on the right with recent surgical drainage, arteriolar nephrosclerosis, chronic salpingitis, fibromyomas of the uterus, and fibrous pleural and peritoneal adhesions.

A postmortem culture of the heart's blood showed no growth.

COMMENT

Acute hemolytic anemia is the most frequent serious complication of sulfanilamide therapy with respect to the blood. It occurs more frequently in children than in adults, and the incidence has been put at about 9 per cent of the children and 3 per cent of the adult patients

who receive the drug.[2] The development of the anemia is not related to the type of infection treated, the dosage of sulfanilamide or the concentration of the drug in the blood.

In every instance so far the disease has developed during the first week of sulfanilamide therapy. The hemoglobin begins to fall between twenty-four and seventy-two hours after the beginning of therapy and usually reaches its lowest level within the next three days. Thus the maximum anemia occurs most frequently on the fifth day following the onset of administration of the drug and almost always between the third and seventh days. The hemolysis of red blood cells is accompanied by an abrupt rise of the icteric index, urobilinuria and the presence of free hemoglobin in the blood. The anemia is often severe, and in the reported cases the total reduction of hemoglobin has ranged from 25 to 71 per cent.

The first fatality from an acute hemolytic anemia incident to the administration of sulfanilamide was reported by Harold Wood.[1]

A Negro aged 25 with a diagnosis of hemolytic streptococcus pneumonia was given a total of 44.7 Gm. of sulfanilamide over a period of five days. The initial red blood cell count and hemoglobin content were 4.52 million and 13.5 Gm. respectively. Signs of hemolysis began two days after the onset of administration of the drug. During the next six days, although the pneumonia underwent resolution, there was a progressive anemia, and the red blood cell count fell to 1.13 million and the hemoglobin content of the blood to 3.5 Gm. per hundred cubic centimeters. A blood transfusion of 300 cc. was given on the ninth day of the disease. This was followed by slight subjective improvement, but vomiting and bleeding from the gums then developed and the patient became irrational. Death occurred four days later, on the thirteenth day after the sulfanilamide was started. Six hours before death a second transfusion of 500 cc. of blood was given.

The present patient was treated with sulfanilamide for an acute suppurative mastoiditis. This infection was evidently caused by type III pneumococcus. A total of 24 Gm. of the drug was administered over a period of four days. The hemolytic process began on the second day of therapy and progressed during the next three days. Jaundice was observed on the third day of treatment and the patient complained of headache and became disoriented. By the fifth day the red blood cell count and hemoglobin, which were 3.04 million and 85 per cent respectively on admission, had fallen to 1.6 million and 38 per cent. The patient died in coma six days after the onset of administration of the sulfanilamide. Death was attributed to the anemia and not to the infection. No blood transfusions were given because donors could not be obtained.

The pathologic changes in the present case are similar to those in Wood's case. The diagnosis of hemolytic anemia is substantiated by the diffuse pallor of all the viscera, the icterus and the demonstration of phagocytosis of iron-bearing pigment in the liver and spleen. Such changes are those of any hemolytic anemia and are in no way specific for sulfanilamide. Death was due to the anemia and to early hypostatic bronchopneumonia. Erythropoietic hyperplasia of the bone marrow was present in both cases and represents the usual secondary reaction to peripheral hemolysis of red blood cells. This finding is of great importance because it evidently demonstrates that the bone marrow is not adversely affected by the sulfanilamide and is capable of increased hemopoietic activity.

It is of interest that both patients who died had syphilis. In the first case the Wassermann and Kline reactions were strongly positive and a syphilitic aortitis was found at autopsy. In the second case the patient gave a history of syphilis and had received fairly adequate antisyphilitic therapy about eight years prior to the present illness. On her present admission the Wassermann reaction was negative while the Kline diagnostic and exclusion tests were strongly positive. No syphilitic lesions were disclosed at autopsy. That syphilis may affect the hemopoietic system is indicated by the frequent development of secondary anemia in the florid and tertiary stages of the disease. The occurrence of these two fatalities in syphilitic patients raises the question as to whether some alteration of the hemopoietic apparatus incident to syphilis may be related to the fatal outcome.

The hemolytic anemia due to sulfanilamide results from a peripheral destruction of red blood cells. The drug either destroys these cells directly or exerts its effect indirectly, perhaps through the medium of the reticulo-endothelial system. No abnormal fragility of the red blood cells was present in the patients in whom the disease developed. The hemolysis has not been reproduced in vitro. The hemolytic reaction has been attributed to drug idiosyncrasy and the recurrence of the anemia in some cases following the resumption of sulfanilamide lends some support to this idea. The bone marrow does not appear to be directly affected by the drug and responds to the peripheral hemolysis with increased erythropoietic activity. This state of the marrow is compatible with rapid recovery of the patient once the peripheral hemolytic process caused by the sulfanilamide is terminated.

The prognosis in this complication is good. Rapid recovery follows withdrawal of the drug, forcing of fluids and blood transfusion. Transfusions should be given promptly, and repeatedly if necessary, because sulfanilamide may produce sufficient hemolysis to cause death from anemia. The immediate blood replacement provided by transfusion appears to exceed its value in stimulation of the bone marrow, especially if the red blood cell count is low. The marrow is capable of reacting to the anemia with erythropoietic hyperplasia. Another benefit of transfusion in some cases may possibly be to check the process responsible for the destruction of blood, perhaps by supplying an antihemolytic substance. This is, however, hypothetical, since the mechanism of hemolysis in this disease is not yet known.

SUMMARY

In the case here reported death was due to the anemia and to early hypostatic bronchopneumonia. The conditions found at autopsy were those of an acute hemolytic anemia, and there were no specific changes due to sulfanilamide. The bone marrow was the seat of erythropoietic hyperplasia.

In both fatal cases so far reported there was syphilis. This raises the question as to whether some alteration of the hemopoietic mechanism incident to syphilis may be related to the fatal outcome.

So far every instance of acute hemolytic anemia incident to the use of sulfanilamide has occurred during

2. Wood, W. B., Jr.: Anemia During Sulfanilamide Therapy, J. A. M. A. **111**: 1916-1919 (Nov. 19) 1938. Long, P. H.; Bliss, Eleanor A., and Feinstone, W. H.: Mode of Action, Clinical Use and Toxic Manifestations of Sulfanilamide: Further Observations, J. A. M. A. **112**: 1.5-121 (Jan. 14) 1939.

the first week of therapy. The prognosis appears to be good in the great majority of cases. Prompt recovery usually follows withdrawal of the drug, forcing of fluids and blood transfusions.

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Clinical Notes, Suggestions and New Instruments

SULFANILAMIDE IN TREATMENT OF TULAREMIA

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March 1, 1939, a middle-aged woman suffered chills, followed by fever, nausea, vomiting and headache. When seen by me the next day she exhibited mild prostration, with a temperature of 103 F. A small ulcer was noted on the medial surface of the proximal phalanx of the right middle finger, but there was no redness or swelling of the hand or forearm; epitrochlear and axillary nodes were not palpable. As a mild epidemic of influenza was prevailing at the time, symptomatic treatment was prescribed.

Her condition grew steadily worse: to the general symptoms were added mild pain in the right arm and more severe pains over the anterolateral aspect of the chest and right upper quadrant of the abdomen; she became weaker and somewhat irrational. The afternoon temperature averaged 104.

March 14 the lesion on the middle finger had become a slightly irregular ulcer about 1.5 cm. in diameter; along its proximal border the skin could be lifted from its base. Although no evidence of lymphangitis was present, this ulcer seemed to be the only significant lesion. After blood had been secured for serologic tests, sulfanilamide was prescribed in doses of 1 Gm. (15 grains) four times a day. Because of nausea and vomiting, the drug was not taken until the 15th. March 16 her highest temperature was 102. The following day the patient telephoned that she had recovered and needed no further medical attention. The same day the State Board of Health Laboratory reported that the test for tularemia was positive in a dilution of 1:320 but that tests for typhoid, paratyphoid, Brill's disease, brucellosis and syphilis were negative. The highest temperature on the 17th was 98.8 and she has been well ever since. Sulfanilamide was continued however until she had taken 14 Gm. (210 grains).

On the thirty-ninth day after the beginning of the illness, a gland was noted in the right axilla which increased in size till it was 3 cm. in diameter five days later. Since then there has been no change in the size of the gland.

April 30 the agglutination test for tularemia was positive in a dilution of 1:5,120.

After the patient had recovered she recalled that a week before she became ill she had taken some dressed rabbits from salt water and wrapped them up. The nature of her occupation was such that she often had scratches and abrasions of her hands.

COMMENT

Tularemia has been recognized as endemic in Georgia for a number of years. In this case there was no history of a previous illness simulating tularemia. It was learned that the patient had handled dressed rabbits about eight days before the onset of the acute illness. The agglutination test, positive in a dilution of 1:320 in the third week, became positive in a dilution of 1:5,120 in the ninth.

Adenopathy occasionally does not appear in the ulceroglandular type of tularemia until after the acute symptoms of the disease have subsided. Distribution of pain similar to that described in this case has also been reported occasionally.

Two days after the administration of sulfanilamide the symptoms of tularemia, severe for over two weeks, subsided and convalescence has been uneventful. So far I have found no report of an earlier case of tularemia successfully treated with sulfanilamide.

The patient was presented before the Fulton County Medical Society, May 4, 1939.

Special Articles

STANDARD METHOD FOR TAKING AND RECORDING BLOOD PRESSURE READINGS

BY THE COMMITTEE FOR THE STANDARDIZATION OF BLOOD PRESSURE READINGS OF THE AMERICAN HEART ASSOCIATION

DRS. M. H. BARKER, CHICAGO; JOSEPH ERLANGER, ST. LOUIS; JONATHAN MEAKINS, MONTREAL; RALPH SCHNEIDER, NEW YORK; S. B. SCHOLZ JR., PHILADELPHIA; HARRY UNGERLEIDER, NEW YORK; PAUL D. WHITE, BOSTON; CARL WIGGERS, CLEVELAND, AND IRVING WRIGHT, NEW YORK, CHAIRMAN

AND THE

COMMITTEE FOR THE STANDARDIZATION OF BLOOD PRESSURE READINGS OF THE CARDIAC SOCIETY OF GREAT BRITAIN AND IRELAND

DRS. CRIGHTON BRAMWELL, MANCHESTER, ENGLAND; T. F. COTTON, LONDON; WILLIAM EVANS, LONDON; A. R. GILCHRIST, EDINBURGH, SCOTLAND; JOHN HAY, LIVERPOOL, ENGLAND, AND MAURICE CAMPBELL, LONDON, CHAIRMAN

It has long been realized by thoughtful teachers and practitioners of medicine that the wide variations noted in blood pressure [1] records of the same individual were due not only to changes in the pressure from time to time under different conditions but also to differences in the methods and interpretation used by the observers. A recent survey [2] revealed a serious lack of agreement among physicians as to the correct technic for taking and interpreting the blood pressure. Equally confusing was the situation among insurance companies as to what they should require of their examiners in this regard. Experiments with multiaural stethoscopes demonstrated that recent years have brought little if any improvement in this situation, since the variations among the recently qualified were as great as those among attending physicians, and the range of error was too great among all groups tested. The committees for the standardization of methods of blood pressure readings appointed by the American Heart Association and by the Cardiac Society of Great Britain and Ireland have attempted to secure a crystallization of the best available thought on this subject.

The joint committees were asked if feasible to make recommendations which might be accepted as constituting standards for practicing physicians, medical teachers, insurance carriers and all others interested in this problem. After a careful study of material available from many sources, the committees of the American Heart Association and of the Cardiac Society of Great Britain and Ireland jointly recommend the following procedure as the standard method for taking and recording blood pressure readings in man:

STANDARDIZATION OF BLOOD PRESSURE DETERMINATIONS

1. *Blood Pressure Equipment.*—The blood pressure equipment to be used, whether mercurial or aneroid, should be in good condition and calibrated at yearly

The recommendations contained in this report have been approved by the Association of Life Insurance Medical Directors of America.

1. "Blood pressure" by common usage signifies arterial pressure and for that reason is so used throughout this report.

2. Wright, I. S.; Schneider, R. F., and Ungerleider, H.: Factors of Error in Blood Pressure Readings, Am. Heart J. **16**: 469-476 (Oct.) 1938.

intervals for accuracy, and more often if defects are suspected (mercurial preferred by British committee).

2. *The Patient.*—The patient should be comfortably seated (or lying—British committee) with the arms slightly flexed and the whole forearm supported at the heart level on a smooth surface. If readings are taken in any other position, a notation should be made. The patient should be allowed time to recover from any recent exercise or excitement. There should be no constriction of the arm due to clothes or other objects.

3. *Position and Method of Application of the Cuff.*—A standard sized cuff containing a rubber bag from 12 to 13 cm. in width should be used. A completely deflated cuff should be applied snugly and evenly around the arm with the lower edge about 1 inch above the antecubital space and with the rubber bag applied over the inner aspect of the arm. The cuff should be of such a type and applied in such a manner that inflation causes neither bulging nor displacement.

4. *Significance of Palpatory and Auscultatory Levels.*—In all cases palpation should be used as a check on auscultatory readings. The pressure in the cuff should be quickly increased in steps of 10 mm. of mercury until the radial pulse ceases and then allowed to fall rapidly. If the radial pulse is felt at a higher level than that at which the auscultatory sound is heard, the palpatory reading should be accepted as the systolic pressure; otherwise the auscultatory reading should be accepted.

5. *Position and Method of Application of Stethoscope.*—The stethoscope should be placed over the previously palpated brachial artery in the antecubital space, not in contact with the cuff. No opening should exist between the lip of the stethoscope and the skin; this should be accomplished with the minimum pressure possible. The hand may be pronated or supinated according to the position yielding the clearest brachial pulse sounds.

6. *Determination of the Systolic Pressure.*—The cuff should be rapidly inflated to a pressure about 30 mm. above the level at which the radial pulse can be palpated. The cuff should then be deflated at a rate of from 2 to 3 mm. of mercury per second. The level at which the first sound regularly appears should be considered the systolic pressure unless, as already described, the palpatory level is higher, in which event the palpatory level should be accepted. This should be noted.

7. *Determination of the Diastolic Pressure and the Pulse Pressure.*—With continued deflation of the cuff, the point at which the sounds suddenly become dull and muffled should be known as the diastolic pressure. If there is a difference between that point and the level at which the sounds completely disappear, the American committee recommends that the latter reading should be regarded also as the diastolic pressure. This should then be recorded in the following form: RT (or LT) 140/80-70 or 140/70-0. If these two levels are identical, the blood pressure should be recorded as follows: 140/70-70. The cuff should be completely deflated before any further determinations are made.

The British committee believes that except in aortic regurgitation it is nearly always possible to decide the point at which the change comes and this is the only reading that should be recorded.

EXPLANATORY COMMENTS

In addition to these specific recommendations, the committee believes that certain other factors should be taken into consideration by the physician who makes blood pressure determinations.

The relative merits of various types of blood pressure apparatus have been the subject of numerous reports. In the opinion of the joint committees, mercurial and aneroid types of apparatus are capable of correct readings if they are in good condition, and both types of equipment may produce inaccurate results if not in good condition. This factor is often overlooked in the case of the mercury manometer, which should be checked at intervals as to the following points:

1. The level of the mercury at rest should be exactly at the zero mark. If some of the mercury has leaked out, this will not be the case. The missing mercury should be replaced.

2. If the small air vent at the top of the glass tubing becomes clogged, a definite lag may be produced; the mercury column may not register the pressure in the bag, and the readings will therefore be incorrect.

3. The apparatus must be on a level surface, since tilting of the manometer will result in incorrect readings. It should also be level with the observer's eyes.

A yearly calibration of the aneroid type of instrument against a U-tube standard is recommended. This is particularly advisable for the older instruments, in which a sharp blow or fall may cause inaccuracies as the result of changes in the aneroid diaphragm. The needle should stand at zero when the apparatus is completely deflated and move immediately when the inflation begins. Manometers which have a stop pin at zero or which have a rotatable dial permitting the user to set the zero mark anywhere are not recommended, since a satisfactory check with these types of instrument is impossible.

In both types of equipment the valves of the instrument, including those of the rubber bulb, should be competent and function smoothly. The entire system, including the "pressure" rubber tubing and rubber bag, must be free from leakage and be kept in good condition. It is recommended that the instrument to be used be checked at yearly intervals against a machine known to be in perfect condition. More frequent checks should be made if the accuracy of the instrument is in doubt. The rubber cuffs used should be from 12 to 13 cm. wide and 23 cm. long. The cloth covering should be of inextensible material of such a nature that even pressure is exerted throughout the width of the cuff; it should extend as a band 15 cm. wide for 60 cm. beyond the edge of the rubber cuff and then taper gradually during an additional 30 cm. New types of cuff using a slide fastening device or hooks on a rib extending the width of the cuff appear to be more satisfactory than the long tapering cuff end. If bulging occurs above and below the band, the reading may not be accurate.

A special cuff should be used to record blood pressures of the leg. The rubber bag should be 15 cm. wide and its covering 17 cm. wide, and 30 cm. longer than in the case of the armlet (total 120 cm.). For children, cuffs of the following widths have been suggested: under 8 years, less than 9 cm.; under 4 years, less than 6 cm.; newborn, less than 2.5 cm. The limited work done in this field does not warrant a definite recommendation at this time.

The American committee selected the sitting position as the preferred choice because of the fact that it simplifies the taking of large numbers of blood pressure readings. It is true that many patients are bedridden but in most instances they can be propped up into a sitting position without causing more than transitory

disturbances in the circulation; and when this is impossible it is suggested that a notation be made as to the position in which the blood pressure is taken. The British committee did not think that there was any significant difference between the sitting and lying positions. For blood pressure readings of the thighs, the auscultation should be over the popliteal artery with the patient prone.

Certain physical and psychologic factors should be considered. Inquiry should be made as to the patient's activity just before the examination. Exercise and meals affect the blood pressure. A rest period of from ten to fifteen minutes prior to the making of the observations will eliminate or minimize certain of these factors. It is important that the physician evaluate the degree of stress or emotional crises through which the patient is passing. The first reading taken by a physician is often much higher than later ones, owing to apprehension and nervousness on the part of the patient. It is often wise, therefore, to avoid conclusions regarding the blood pressure level of an individual until several readings have been made on successive visits. This is especially important with hypertensive and hyperthyroid patients. Any evidence of apprehension or of undue concern on the part of the physician may alarm the patient and increase the pressure.

There are variations in the blood pressure level of certain individuals in the course of a day. It is therefore suggested that for careful records the time of the day should be noted, and if the patient is being carefully followed in reference to the blood pressure level the observations should be made at essentially the same time and in the same relationship to meals, sleep, exercise and other similar factors.

The term "points" is suggested for use in reference to diastolic pressure, since the former commonly used word "phase" implies a measure of time interval, whereas in reality the fourth and fifth "points" are the exact levels at which change is made from one phase to the next. Detailed discussion in reference to the second and third phases is not pertinent to this report, since those phases are of little if any practical importance and tend to confuse the issue at hand. It should be clearly recognized that a single figure for systolic or diastolic pressure apparently does not represent actual pressure within from 5 to 10 mm. of mercury. If the physician wishes to minimize the sources of error several blood pressure readings should be made, the highest and lowest pressures during the course of this series being recorded. Whereas an average of the series of readings might be recorded, this would not have the same significance in instances of cardiac irregularity.

The determination of blood pressure in arrhythmias is unsatisfactory at best when made with the apparatus under discussion. With premature beats the higher systolic pressure of the beats that terminate compensatory pauses should be ignored. With auricular fibrillation both diastolic and systolic readings should be recorded as approximate only. It is suggested that in this condition the average of a series of readings for the reappearance of sound be noted as the systolic pressure and that similar averages for the fourth and fifth "points" be recorded as the diastolic pressure. The diagnosis, if not stated elsewhere on the patient's chart, should be noted with the blood pressure recording. In aortic regurgitation with a collapsing pulse the diastolic end point is sometimes marked by a less obvious change in the quality of the sounds than normally. This change may be difficult to appreciate.

Alternation of the pulse during blood pressure determinations may indicate left ventricular weakness.

It is suggested that, when especially careful studies of the blood pressure are to be made, the use of basal blood pressure conditions should be considered. A preparation similar to that used in making a basal metabolism test is recommended. Such a basal blood pressure determination should be made from ten to twelve hours after a previous meal (preferably in the morning) after the patient has rested for thirty minutes in a comfortably warmed room. The patient should be mentally as well as physically at ease. This procedure would be most useful in experimental studies when an accurate standard level is desired. Objections to its use in general practice are obvious.

When auscultatory methods alone are used, the actual blood pressure level may be definitely higher than the level at which the first sounds are detected. Under the circumstances the palpatory reading will be the more correct of the two. If both palpatory and auscultatory methods are used as recommended, this error will be detected.

In occasional instances the usual sounds are heard over the brachial artery at a fairly high level; as the pressure in the cuff is reduced, the sounds completely disappear only to reappear at a distinctly lower level. This zone of silence is known as the auscultatory gap. Its existence is obviously important, as it is possible in such cases to inflate the cuff only to the level of the auscultatory gap and to record the systolic pressure at the level where sounds are first heard, which may actually be 40 or 50 mm. below the true systolic level.

The importance of avoiding unnecessary venous congestion should be recognized. This can be minimized by making certain that there are no constricting bands on the patient's arm and that the pressure cuff is not kept inflated longer than absolutely necessary to make the blood pressure reading. Decompression should be at the rate of approximately 2 to 3 mm. of mercury per second. After a reading has been made, the cuff pressure should be reduced to zero long enough to allow the veins to empty before another determination is started.

It is suggested that on the first examination of the patient the blood pressure in both arms be taken, since the two may not be the same. If the patient is followed for a period of time this procedure might wisely be repeated at stated intervals of every few months and at other times if indicated by developments. In the presence of unexplained high pressure in the brachial artery, it is suggested that blood pressure in the legs be taken also. By this procedure conditions such as coarctation of the aorta may be detected.

If the variations in blood pressure which occur with respiration are considerable, this factor may be eliminated by taking a reading while the patient holds his breath at midrespiration, but this must be for only a short interval or abnormal blood pressure readings will result because of asphyxia and other factors.

Certain factors inherent in the physician, such as variations in accuracy of hearing, must be recognized as important. A physician who is aware that his hearing has become impaired should use a stethoscope which is amplied to a greater extent, and in the event of marked deafness electrically amplified or other mechanical devices should be utilized. It is thought inadvisable

at this time to make recommendations regarding automatically recording blood pressure equipment.

The combined use of the auscultatory and palpatory methods as described herein will yield routine data that are as reliable as those given by any other method. Under exceptional circumstances, as when the pulse is too feeble to produce sounds or too irregular for averaging, recording methods may become necessary. Those contemplating the use of graphic methods should first ascertain through reliable sources whether they will subserve the ends in mind.

The recommendation of a standard procedure as outlined by the committee is not intended to discourage initiative when indicated in special situations.

CONFERENCES ON THERAPY

VITAMINS; VITAMIN B_2 THERAPY

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.*

DR. MCKEEN CATTELL: We have for our topic this morning vitamin therapy with special reference to vitamin B_2. Dr. Rhoads, from the Rockefeller Institute, has kindly come over to lead the discussion.

DR. C. P. RHOADS: Last year when the therapeutic use of vitamins was discussed before this group it became clear that so broad a topic could not be presented adequately in a single conference. It has seemed wise, therefore, to limit this discussion to a single phase of the problem and to consider only those effects of the deficiency of vitamin B_2 (the heat-stable, water-soluble B complex) which are concerned with pernicious anemia, sprue and pellagra.

As a matter of historical interest it should be recalled that our first definite information concerning the vitamin B complex came from the work of Takaki, a Japanese naval surgeon, who made the significant observation that beriberi was particularly common among those whose diets were composed almost entirely of polished rice. From this observation the concept of beriberi as a deficiency disease developed, and when the deficient rice diets were supplemented with meats and vegetables the disorder almost disappeared. The later study of Eijkman was based on this original work and proved that the antiberiberi substance is present in grain germs and hulls. It was learned, furthermore, that the vitamin is destroyed rather quickly by heat. We now know, thanks to the work of Williams, that this heat-labile antineuritic, beriberi preventing vitamin, formerly called B_1, is a chemical compound known as thiamin. We know further that it is active after phosphorylation, as the prosthetic group of a coenzyme cocarboxylase, which has to do with carbohydrate metabolism.

The next step concerning vitamin B was the observation by Goldberger that something contained in yeast, meat, milk and certain vegetables would prevent and cure pellagra. Goldberger established the facts that his antipellagra material had roughly the same distribution in nature as the antiberiberi vitamin but differed from that substance in being stable to heat. Accordingly, the pellagra preventing material was a second constituent of the water-soluble vitamin B complex and as such was termed vitamin B_2. Since Goldberger's original study, we have learned that his effective material is the amide of nicotinic acid and is active, after phosphorylation, as the prosthetic group of a coenzyme, which has to do with carbohydrate metabolism. At least two other constituents of the B_2 complex have been identified—one a flavin complex and the other a substance known as vitamin B_6; further studies will prove it is hoped, the exact action of these constituents. There may be still more which have not been identified.

The recent chemical isolations of pure vitamins have obscured the important original observations of those who worked with crude substances. It should be recalled that Goldberger discovered the cure of pellagra, although he worked under the greatest difficulties. Any one interested in the vitamin B_2 complex should read Goldberger's original papers, since they are classic examples of productive investigation. He established the fact that inadequate diets were eaten uniformly by human beings who contracted pellagra, and he demonstrated the curative value of more liberal diets. By feeding to animals the diets which were eaten by pellagrins he then produced an experimental disease like pellagra and cured it by the same dietary constituents which cured the human subjects. Finally, he made the crucial experiment of producing pellagra experimentally by feeding to human volunteers deficient diets like those which caused symptoms in experimental animals.

STUDIES ON SPRUE AND PERNICIOUS ANEMIA

The next advance in the study of heat-stable vitamin B_2 complex was the discovery of the cure of pernicious anemia. The curative effect of liver feeding in that disease was proved by Minot and Murphy following the suggestion of Whipple. It is interesting to note that, before Minot's paper appeared, Gibson and Howard described remissions in cases of pernicious anemia after eating diets rich in liver. Lacking precise methods for evaluating the effect of specific therapy, they did not realize the importance of their observation, however. Minot had developed such a precise method in the reticulocyte curve, and its use probably contributed greatly to the discovery.

You may ask what the liver treatment of pernicious anemia has to do with the vitamin B complex. The relationship became apparent from the studies of Castle, who observed that a dietary constituent allied to that complex interacted with a factor present in normal gastric juice to form a third substance which is present in liver and is curative of pernicious anemia. The observation developed as follows: Castle knew that achlorhydria was a constant feature of the gastric juice of patients with pernicious anemia. He knew that the disease could not be cured by the administration of any known constituent of gastric juice—pepsin, rennin or hydrochloric acid—and he was convinced that the constancy of achlorhydria in pernicious anemia was concerned with the etiology of the disease. He had the determination to prove that his conviction was valid. It had been noticed that the diets of many patients with pernicious anemia were low in their content of meat. Accordingly, Castle ate beef muscle, allowed it to digest in his own stomach, removed it, neutralized it, and fed the mixture to patients with pernicious anemia. They were regularly cured. He continued the study to prove that beef muscle alone was inactive, and that gastric juice alone was inactive, but that when the two were incubated together something was formed which

was curative. Although the product of the interaction is not the same substance which can be extracted from liver, it must be very closely akin to it, since the two have the same physiologic effect. Castle coined the terms "extrinsic factor" for the substance present in beef muscle and "intrinsic factor" for the substance present in normal gastric juice and absent from the gastric juice of patients with pernicious anemia.

At the time of the original experiment, Castle had no reason to believe that the active constituent of beef muscle was a vitamin. The knowledge that this substance was allied to the heat-stable vitamin B_2 complex developed later, partly from the work of Wills and partly from the studies of sprue made by Castle and by me.

In 1931 Wills described a macrocytic anemia which occurred in malnourished women in Bombay. Hematologically this disorder was similar in many respects to pernicious anemia but it could be cured by feeding a concentrate of autolyzed yeast without added normal gastric juice. It could also be cured by liver extract. From the Castle mechanism of extrinsic factor interacting with gastric factor to allow the formation of a liver factor, it was clear that the absence of any one of these three should result in pernicious anemia, curable either by liver extract (as the end product) or by supplying the missing factor. The observation of Lucy Wills suggested that she was dealing with pernicious anemia due to a lack of dietary factor, although she had cured her patients with yeast rather than with beef muscle. If the disorder were like pernicious anemia the observation was evidence that the same or a similar substance was present in the yeast which Wills administered, as in the beef muscle which Castle employed as extrinsic factor.

In further support of the Castle hypothesis of a tripartite etiologic mechanism of pernicious anemia was the fact that a number of cases of that disorder had occurred following gastrectomy. Presumably the intrinsic, or gastric, factor had been surgically removed in these cases. Finally, as an example of pernicious anemia due to lack of hepatic factor was the macrocytic anemia associated with certain forms of liver disease. Although this anemia does not respond very well to treatment effective in pernicious anemia, this fact can be explained in such a way that the Castle hypothesis is not invalidated.

Suggestive of the existence of dietary pernicious anemia as the evidence just mentioned seems to be, further proof was required. This proof was obtained in part from studies made by the second Rockefeller Foundation Commission for the study of anemia in the tropics. This commission was under the direction of Dr. Castle, and I had the great privilege of taking part in its activities. We were confronted with the problem of ascertaining the cause and, if possible, the cure of tropical sprue. It was known that sprue was characterized by stomatitis, glossitis, macrocytic anemia and gastrointestinal disturbance. These symptoms are similar qualitatively to the symptoms of pernicious anemia though they differ quantitatively. Clinical study established the fact that sprue and pernicious anemia were more similar than we had supposed them to be, although certain differences existed. The most striking likeness was in the anemia, since in many instances it seemed to be of exactly the same type as that of pernicious anemia. It seemed possible that sprue anemia was pernicious anemia, not arising from lack of the gastric intrinsic factor of Castle, as was the case in the pernicious anemia of temperate zones, but from a lack of some other part of the Castle tripartite mechanism. The possibility was investigated that lack of the dietary factor was at fault, and definite histories of dietary insufficiency in substances known to be rich in the extrinsic factor of Castle were established in many instances. The gastric intrinsic factor was also investigated. In contrast to pernicious anemia of temperate zones, a majority of the patients with pernicious anemia of sprue were able to secrete hydrochloric acid in their gastric juice. It was clear that for an understanding of sprue the original Castle experiment would have to be repeated on patients with that disorder. This repetition would establish whether the anemia of sprue was due to a lack of dietary, gastric, or hepatic antipernicious anemia factor.

A series of cases of sprue with macrocytic anemia of severe degree were tested by feeding in a first period beef muscle, in a second period beef muscle and gastric juice, and in a third period liver extract. In a fourth period liver extract was injected. If the patients responded by increased reticulocytes to the feeding of beef muscle, it was clear that the anemia was due to a previous lack of some constituent of beef muscle. If there was no response to the feeding of beef muscle but a response did follow the feeding of a digest of beef muscle and normal gastric juice, it was proof that gastric, or intrinsic, factor was lacking, as was the case in classic pernicious anemia. If no response followed either of these two experiments but did occur after the feeding of liver extract, it was evidence of some interference with the conversion into liver extract of the product of the interaction of extrinsic and intrinsic factors. Finally, if no response occurred in any one of the first three periods but did occur after the injection of liver extract, two explanations were possible: either the absorption of antianemia factor from the intestinal tract was interfered with or an excessively large amount of this factor was required.

In the series studied in the manner just outlined, examples of all four possibilities were encountered. Some patients responded to the feeding of beef muscle alone, and these patients tended to have free hydrochloric acid in the gastric juice. Other patients responded not at all to beef muscle but only after the beef muscle had been digested with normal gastric juice. These cases were physiologically analogous to classic pernicious anemia. A third group showed responses to liver extract given by mouth and it was concluded that some interference with the production of liver extract factor from extrinsic and intrinsic factor was at hand. Finally, certain patients gave a response to injected but not to orally administered liver extract, a fact which suggested that absorption of antianemic principle from the intestine was interfered with. In brief, in this series, examples of pernicious anemia due to a lack of any one or all three of the constituents of the Castle mechanism were observed.

In the next experiment a similar study was made in which autolyzed yeast was substituted for beef muscle as a source of dietary factor. This was done to establish the fact that the same effective substance was present in the autolyzed yeast fed by Wills as in the beef muscle fed by Castle. The results were in general parallel to those which have been described, and accordingly the evidence was clear that yeast could serve in the place of beef muscle as a source of dietary or extrinsic factor. Furthermore, it could be shown that the active principle in the yeast was stable to heat,

suggesting that it was a part of the vitamin B_2 complex. The evidence was strong that sprue anemia was basically pernicious anemia but that many cases were caused by a somewhat different defect than the gastric one which caused pernicious anemia of temperate zones.

As further proof it was possible to test for anti-pernicious anemia potency the liver of a patient dying by accident with a severe macrocytic anemia of sprue. When a suitably prepared extract of this patient's liver was injected into a patient with pernicious anemia no response was obtained but, when the same patient was tested by injecting a similarly prepared extract of normal human liver, remission was effected. Clearly the case of sprue anemia was due to the same lack of a substance contained in the patient's liver as caused the hematologic disorder of pernicious anemia.

Finally, the gastric juice of patients with sprue was incubated with beef muscle and tested directly on patients with pernicious anemia. You will recall that if the gastric juice of a patient with pernicious anemia is digested with beef muscle and fed to another patient with pernicious anemia no effect is obtained. If, for the pernicious anemia gastric juice, the gastric secretion of a normal individual is substituted, cure follows. In two tests of the gastric juice of patients with sprue there was no effect on the patient with pernicious anemia, but remission was obtained when normal gastric juice was substituted for the gastric juice from the patient with sprue. It appears that these two patients had anemia and presumably the other symptoms of sprue for exactly the same reason that people have pernicious anemia: they lacked gastric intrinsic factor. In a third test, however, a different result was obtained. Here the sprue gastric juice digested with beef muscle and fed to a patient with pernicious anemia gave a response as good as that which could be expected from the administration of normal gastric juice-beef muscle digest. It was apparent that this patient with sprue did not have anemia because he lacked gastric factor but only because dietary factor was wanting. It was, in other words, a dietary rather than a gastric pernicious anemia.

The clinical experiments seemed to be clearcut. It was next necessary to produce in animals a disorder something like sprue or pernicious anemia in human beings. It was necessary, furthermore, to be able to cure this disorder by the substance, liver extract, which cured sprue and pernicious anemia in man. Goldberger had produced the analogue of pellagra in dogs by feeding diets which lacked a factor contained in yeast and now known to be in part nicotinic acid. The symptoms in Goldberger's dogs, stomatitis, glossitis and diarrhea, were not only features of pellagra but also features of sprue and pernicious anemia. Whereas pellagra was clearly a disorder distinct from sprue and pernicious anemia, it might be that by some modification of the diet in experimental animals a disease could be produced which would be less like pellagra and more like sprue, with an anemia similar to that of sprue and pernicious anemia.

By feeding to dogs a modification of Goldberger's diet, anemia, stomatitis and diarrhea could be made to occur and could be cured by supplementing the diet with liver extract. The results were inconsistent and the experiment useful only as a guide. The fact then developed that the dog possessed little gastric or hepatic factor effective against pernicious anemia in man. The dog apparently used some constituent of yeast directly without conversion by gastric secretion or liver. It was known, however, that the pig did possess anti-pernicious anemia factor in his stomach since ventriculin, an effective therapeutic agent in pernicious anemia, was made from pig's stomach. Accordingly the modified pellagra-producing diet of Goldberger was fed to young pigs. The animals failed to grow, developed achlorhydria, evidence of neurologic involvement, stomatitis, diarrhea and anemia. These symptoms could be prevented and cured by administering liver extract. They could also be prevented by supplementing the diet with heated yeast, the same material which was effective as a source of dietary factor in the anemia of sprue and pernicious anemia. The anemia was inconstant in the swine, occurring in about 40 per cent of the animals studied. When it occurred, hyperplastic, immature bone marrow was present, not unlike that seen in sprue and pernicious anemia in human beings. When the gastric juice of the achlorhydria swine was incubated with a source of dietary factor and fed to patients with pernicious anemia, no response was obtained but was effected when normal swine gastric juice was employed. Finally, liver extract was made from the livers of improperly fed achlorhydric and anemic swine and injected into patients with pernicious anemia. There was no effect. A response was obtained, however, when normal swine liver, similarly extracted, was used. It seemed clear that by feeding to swine a diet lacking in some heat-stable constituent of yeast the animal's liver was unable to store a factor which would prevent or cure pernicious anemia in man. This experiment was of some importance because it indicated that bad diets could in turn cause improper gastric function and the combination could result in a decreased content of the liver in anti-pernicious anemia factor.

As knowledge has developed in the last two years, these experiments are wanting in certain specific information. We know that nicotinic acid is part of the active constituent of heated yeast which is curative of pellagra. Nicotinic acid seems to have no curative effect in either pernicious anemia or sprue. The diets fed to the animals were empirically devised to produce the desired symptoms. We did not know, and do not know now, what factor or factors were lacking in them. Very slight changes in the composition of diets designed to be deficient in certain specific constituents may result in quite different symptoms. More extensive investigation of this subject is required.

Further study of sprue revealed an interesting and unexpected fact. Many cases required enormously greater amounts of antianemic liver extract than did patients with pernicious anemia at the same blood levels. This fact suggested that in sprue, as well as in some cases of pernicious anemia, some factor might be operative which increased the requirement for antianemic material—in other words, some metabolic abnormality of the body might condition the deficiency of liver extract (the product of the interaction of gastric juice and the vitamin B_2 complex). It was known that patients with pernicious anemia excreted large amounts of indican as ethereal sulfate in the urine. Accordingly, the effect of feeding indole, the source of indican, to dogs was tried. There was little or no effect on the blood picture. If, however, these dogs were fed diets lacking in the B_2 complex but insufficiently so to cause anemia, the administration of indole produced a severe hemolytic disorder with exceedingly low blood levels and without essentially elevated levels of reticulocytes. If the administration of indole was continued and the diets were supplemented with liver extract as a source

of the lacking factor, reticulocyte crises and rapid disappearance of the anemia resulted. This effect was coincidental with a decrease in the activity of the hemolytic process. This experiment is of some importance. It demonstrates for the first time that the toxicity of a compound may be conditioned by the lack of a dietary constituent. Further evidence of this principle is accumulating rapidly from different laboratories. I need only quote the experiments concerning the increased toxicity of naphthalene when animals are fed diets lacking cysteine, and the studies of White concerning a similar modification of the toxic effect of methylcholanthrene. The balance between the toxic compound and the dietary constituent is remarkably constant. If an excessive dose of the toxin is given, indole in our experiments, anemia will develop irrespective of the amount of vitamin fed. If a small amount of toxin is given and a normal diet fed the anemia disappears. If the same dose of toxin is continued and the diet is made deficient the anemia reappears. Even though the administration of toxin is continued, however, the anemia disappears once more when the lacking factor in the diet is administered.

Since the original studies of sprue and of pernicious anemia, certain new clinical observations have been made. It appears that the various manifestations of the full blown disorders may occur separately, without the usual concomitant symptoms. If properly recognized as evidence of deficiency disease, these isolated symptoms may be treated quite as effectively as the complete syndrome. For example, pellagrous-like stomatitis may occur without the other signs of pellagra and respond to antipellagra treatment. Central nervous system disorders like that of the combined system disease usually seen in pernicious anemia may occur without anemia. Treatment with liver extract seems to be effective in these cases.

The fundamental contributions of the biochemists have clarified to some extent the precise actions of certain components of the vitamin B_2 complex. Of these components two have been identified, nicotinic acid and flavin. Both are active in enzymes after phosphorylation and combination with specific proteins. The enzymes are required for the proper oxidation and reduction processes of the body. In oxidation, hydrogen leaves the substrate and is taken up by cozymase (the nicotinic acid enzyme), which is itself reduced. In turn the hydrogen is given up by the coenzyme with its reoxidation and taken up by the flavin coenzyme with its reduction. Finally the hydrogen is transferred to a third enzyme and the flavin compound becomes oxidized once more. From these facts it is apparent that without these hydrogen carrying vitamin-enzymes the most fundamental processes of the body cannot proceed. It is not surprising that deficiency disease results in striking symptoms.

The last point to be considered is how deficiency disease can occur in the presence of an adequate intake of the essential dietary constituents. Simple deficiencies which occur because of poor diets are easy to understand. A mass of evidence has accumulated, however, which proves that symptoms of vitamin lack may occur in other ways. Vitamins may be washed out of the intestinal tract by diarrhea before they can be absorbed. They may fail to be absorbed even though diarrhea is not a marked feature. They may fail to be converted to a usable form, as is the case in pernicious anemia. Infection may inhibit the action of vitamins by some toxic action. Finally, the work of Brown advances clear evidence that individuals vary greatly in their requirement for dietary constituents: a good foundation for the statement "One man's meat is another man's poison." If these principles are borne in mind the treatment of symptoms of deficiency disease becomes one of the most fascinating and satisfactory duties of clinical medicine.

DISCUSSION

DR. CATTELL: We now have a period for questions and discussion. There must be a number of points which can be presented for further discussion.

DR. HARRY GOLD: Would Dr. Rhoads say whether there are any clinical states of ill health other than pellagra, sprue and pernicious anemia in which the vitamin B_2 complex is useful?

DR. RHOADS: You refer to any constituent of the B_2 complex?

DR. GOLD: The mixture.

DR. RHOADS: That depends a great deal on how you define pellagra, sprue and pernicious anemia. We see constantly in our hospital on the infectious service a disorder marked by stomatitis and often by mild neurologic disturbance. It may occur with or without achlorhydria or a diminution of free hydrochloric acid. In treating this disorder the B_2 complex is exceedingly useful. We see a good many cases of mild nervous system disorder which clinically is not dissimilar from combined system disease but is associated with rather little blood changes and not always with achlorhydria. We think that liver extract is very useful in treating this condition.

We are also interested in a large group of individuals with various disorders of the oral mucous membrane, most of them without much anemia. Much can be done with B_2 complex to maintain the integrity of those mucous membranes.

DR. GOLD: Are there any skin manifestations other than the classic lesions of pellagra which respond to vitamin B_2 complex?

DR. RHOADS: That is very hard to answer. You probably know that we have been working with several dermatologists here in town for a considerable period in an attempt to pick out a group of skin disorders which will respond. Such a group seems to exist. At the present stage of the work it is not possible to pick out cases which will respond regularly. Much more experience is required.

DR. E. F. DU BOIS: Dr. Rhoads, I was particularly interested in what you said about the evidence of vitamin deficiency in the patients with pneumonia. A good many years ago I had the privilege of working with Dr. Warren Coleman, studying the diet in typhoid fever, in the period before we realized the importance of the vitamins. I am wondering how much of the improvement in the typhoid fever patients was due to the increase in vitamins in the diet and how much was due to the mere caloric content.

DR. RHOADS: That is an exceedingly interesting point. As a mater of fact, you made this suggestion a year or two ago. The suggestion led Dr. MacLeod to watch the pneumonia patients more carefully. As soon as we did so it was apparent that many of our patients severely ill with pneumonia were getting a marked atrophic glossitis along in the first five or six days of convalescence. It apparently responds very dramatically to the administration of the B complex in heavy

dosages, either as yeast or as liver extract. The mechanism is very interesting in that if you watch these people most carefully day by day the disorder is seen to begin as the old fashioned coated or furred tongue. We think that the coating represents simply the beginning of necrosis of the papillae. As the condition progresses the whole surface suddenly peels off in a few hours leaving the typical slick, red, atrophic surface of the pellagrous tongue. As treatment is given the papillae grow again and the normal surface is restored.

DR. DU BOIS: As I remember, back about twenty-six years ago the thing that struck us most in the improvement of the typhoid patients, one of the things that was manifested first, was the improvement in the condition of the mouth. We thought that was due to better nursing, to care of the nose, so that it wasn't stopped up, causing the patients to breathe through their mouths, or because of their improved mental condition. But the tongues improved so rapidly that in the latter stages of the typhoid fever, along about the second week of the disease, the tongues of the typhoid patients on liberal diets would be practically normal.

DR. RHOADS: I think that is quite in accord with our observations on pneumonia. Indeed, one must bear in mind, I think, that infectious disease burns up the essential substances or blocks their use in some way. It is necessary to be on guard constantly against the possibility of the patient becoming deficient in these most important enzyme systems. We are putting all of our convalescent respiratory disease patients on high vitamin therapy as quickly as they can take things by mouth.

There is a strong impression that convalescence is shortened by feeding high vitamin diets. Unfortunately, at the present time the impression isn't susceptible to quantitative measurements.

DR. CATTELL: Do you feel it is desirable to give some attention to vitamin therapy even in mild forms of infection?

DR. RHOADS: Yes, we do. As I say, until we have quantitative measurements this statement is only one of an impression.

DR. CATTELL: Is the therapy best administered in the form of a liver extract or are there other sources equally good?

DR. RHOADS: Again that is exceedingly hard to answer because we have no measures. We do not know which vitamin is burned up first. Presumably one will have good results by giving a good yeast material, provided the patient can convert it to the form in which it is used. We know about the conversion of one factor, that which goes to make up liver extract. There are many other conversions which are not so well understood.

The matter of yeast therapy is an interesting one. Dr. Dexter, associated with me, has found a most extraordinary variation in the potency of yeast. He finds that in many commercial preparations the nicotinic acid enzyme is just about dead, as shown by tests for cozymase content. The manufacturers grind up the yeast very carefully to make a palatable preparation. The procedure of grinding gives a big surface area to be oxidized, and cozymase disappears.

We have the greatest difficulty in getting a suitable yeast preparation. Quantitative measurements are not available for potency. The whole field has to be studied, I think, in much greater detail.

STUDENT: I should like to ask Dr. Rhoads what commercial product of vitamin B complex he feels is the most useful for therapeutic purposes.

DR. RHOADS: I am sorry I cannot answer that. We are using material made for us by the Fleischmann Company. That is not available generally. It is a very potent, rough kind of yeast. We have not made a careful analysis of the various therapeutic materials for sale. We have tested certain ones and there is a great variation. Our best preparation is a coarse one which comes in lumps, like grapenuts. There is not much surface area and it holds the potency better than the finely purified and ground powders. Nobody has adequate measures of the potency of the commercial preparation except by rat growth methods.

DR. CLAUDE E. FORKNER: I should like to make just one comment concerning your early remarks, Dr. Rhoads, concerning the discovery of the effectiveness of liver. I think that perhaps it precedes the studies of Howard because in the old Chinese literature there is plenty of evidence that they thought liver was very effective in the treatment of anemic persons.

DR. RHOADS: Sir Patrick Manson, the great English authority on tropical medicine, was confronted with a case of tropical sprue in Shanghai in 1880. He did not know much about the disorder but recognized the anemia. He treated the woman with iron. He called in Cantlie, a celebrated colleague, to assist him with the case and he could do no better. The woman left both her physicians and went to a Chinese Joss doctor, who cured her in two weeks. She met the two Englishmen on the street later and upbraided them for their lack of effective therapeutics. They were very much hurt and rushed to the Chinese doctor, whom they knew, and asked him what was used. He said he had administered a very fine remedy which had been employed by his ancestors for many thousands of years, the dried liver of a crow made up into a pill. It was perfectly effective, apparently. From that day on Patrick Manson included liver as a method of treating sprue in his textbook.

I think that observation supported Dr. Minot in his clinical work, as it supported everybody looking for a dietary factor curative of pernicious anemia.

DR. GOLD: Do the skin lesions of pellagra respond to nicotinic acid as well as those of the tongue? If you see a suspicious tongue would you use nicotinic acid or vitamin B complex?

DR. RHOADS: On the first question I would have to quote the experience of Smith, Spies and others, who have been treating a great many pellagrins. They feel that pellagrous skin does respond to nicotinic acid as does the tongue, up to a point. There is a strong suspicion that there is something else needed as well.

The question about sore tongue and nicotinic acid is an interesting one. We have studied well up to 100 cases of glossitis of various types. I cannot even now decide which will respond to nicotinic acid, which to yeast and which to liver extract. Many certainly do not respond to nicotinic acid. Most do respond to liver extract. This is in accord with the observation of Sebrell and his co-workers, who have shown that the cracked lips of cheilosis may be produced by lack of flavin and cured by administering flavin. We have worked nearly two years on this problem with a large number of cases now. Weissberger in Boston, who has been independently engaged in a similar problem at the Harvard Dental School, has had a similar experi-

ence. We need precise methods for measuring the deficiency, which we do not have at present.

DR. GOLD: Won't a quart of milk a day do as well as nicotinic acid or yeast for the average person under suspicion of pellagra?

DR. RHOADS: Milk is exceedingly rich in flavin. It is not very rich in nicotinic acid, apparently, judged by the animal test. A dog will get blacktongue if maintained sufficiently long on a straight milk diet.

DR. GOLD: I believe that Goldberger never found pellagra in subjects taking a quart of milk daily.

DR. RHOADS: Milk is supposed to be useful in preventing pellagra. I can only tell you that the dog will get into trouble. I haven't the figures for the nicotinic acid content of milk in mind. I am not sure they are known. Milk is not a perfect food, and it will not maintain the dog or rat in health. We are not perfectly sure, you see, in the dog, that this stomatitis which occurs is not due to lack of something else than nicotinic acid. Apparently, when you interfere with any respiratory enzymes you get stomatitis in the dog. It is not impossible that lack of iron may be a factor.

STUDENT: If you excuse the diversion to another vitamin, is there any acceptable evidence for antiinfectious action of vitamin A in human beings?

DR. RHOADS: I should think that was not possible to answer. The only acceptable papers that I have seen are those of Webster. Church is at present continuing the work on the subject in Philadelphia. I am informed that he has convincing unpublished experiments. Although the evidence is suggestive, it would require five years and a tremendous outlay of money to produce conclusive experiments. You have to have animals whose susceptibility is known precisely and they have to be handled under the most meticulous laboratory conditions. There is certainly a strong suggestion that lack of vitamin lowers the resistance of experimental animals to infectious disease.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

PENTOTHAL SODIUM.—Sodium ethyl (1-methylbutyl) thiobarbiturate.—Sodium ethyl (1-methylpropyl carbinyl) thiobarbiturate.—

$$Na(C_2H_5)[CH_3CH_2CH_2(CH_3)CH]C.CONH.CO:NCS.—$$

The monosodium salt of ethyl (1-methylbutyl) thiobarbituric acid. Pentothal sodium differs from soluble barbital U. S. P. (sodium diethylbarbiturate) in that one of the ethyl groups of the latter is replaced by a 1-methylbutyl group and the oxygen atom in the urea part of the molecule has been replaced by a sulfur atom.

Actions and Uses.—The actions and uses of pentothal sodium are essentially similar to those of pentobarbital sodium except that pentothal sodium is effective in smaller doses and the action is of briefer duration. When injected it is a quick-acting, general anesthetic with an early recovery period. It may be emphasized that the intravenous use of barbiturates may be a valuable procedure; but such use is potentially dangerous and should be undertaken only by experts for short operations. The use of pentothal sodium is not recommended in major operative procedures requiring long anesthesia or for office procedures. It should be employed only by competent, experienced anesthetists or surgeons who have at their hands facilities to combat problems involving respiratory depression and carbon dioxide-oxygen balance.

Dosage.—Two or three cc. of a 5 per cent solution (from 0.1 to 0.15 Gm.) is injected in about ten or fifteen seconds. The injection is then stopped to permit the complete effect to appear, which requires from thirty to thirty-five seconds. If relaxation has not occurred, an additional 2 or 3 cc. may be injected at the same rate as before.

Caution: Aqueous solutions of pentothal sodium are not stable but decompose on standing; on boiling, a precipitation occurs.

Pentothal sodium occurs as a yellowish-white hygroscopic powder, possessing a sulfur-like odor, soluble in water and alcohol, insoluble in absolute ether, benzene and hydrocarbon solvents. An aqueous solution of pentothal sodium has an alkaline reaction to litmus.

Dissolve about 0.5 Gm. of pentothal sodium in 100 cc. of water, add an excess of diluted hydrochloric acid; collect the resultant ethyl (1-methylbutyl) thiobarbituric acid on a filter paper, wash and dry at 70 C.: it melts at 156-159 C. Incinerate about 1 Gm. of pentothal sodium: the residue responds to tests for sodium carbonate and very faintly for sulfide. Boil about 0.2 Gm. of pentothal sodium with 25 per cent sodium hydroxide solution: no evolution of ammonia occurs. Dissolve about 0.1 Gm. of pentothal sodium in 10 cc. of water, add 1 cc. of mercuric chloride: a white precipitate results, soluble in an excess of ammonia.

Dissolve about 0.5 Gm. of pentothal sodium in 50 cc. of water, add 5 cc. of diluted nitric acid and filter through paper: separate portions of 10 cc. each of the filtrate yield a faint opalescence on the addition of 1 cc. of silver nitrate solution *(chloride)*; very slight turbidity on the addition of 1 cc. barium nitrate solution *(sulfate)*. To about 0.2 Gm. of pentothal sodium in 25 cc. of water add 1 cc. of diluted hydrochloric acid; filter through paper: the filtrate yields no coloration or precipitation on saturation with hydrogen sulfide *(salts of heavy metals)*.

Dry about 0.5 Gm. of pentothal sodium, accurately weighed, at 70 C., for twenty-four hours: the loss in weight should not exceed 2 per cent.

Transfer about 0.3 Gm. of pentothal sodium, accurately weighed, to a suitable Squibb separatory funnel; add 50 cc. of water, followed by the addition of 10 cc. of diluted hydrochloric acid; extract with six successive portions of chloroform using 25 cc., 25 cc., 20 cc., 15 cc., 15 cc., and 10 cc. respectively, evaporate the combined chloroformic extractions to dryness in a stream of warm air and dry to constant weight at 70 C.: the amount of ethyl (1-methylbutyl) thiobarbituric acid corresponds to not less than 89 per cent nor more than 92 per cent calculated to the dried substance.

Transfer the acidulated aqueous portions from the foregoing immiscible solvent extraction to a tared platinum dish and evaporate to dryness on a steam bath; to the residue obtained add 5 cc. of sulfuric acid; heat *cautiously* until the excess of sulfuric acid has been volatilized; repeat twice, using portions of 1 cc. each of sulfuric acid each time; add about 0.5 Gm. of ammonium carbonate; ignite to constant weight and weigh as sodium sulfate: the percentage of sodium corresponds to not less than 8.5 per cent nor more than 8.8 per cent when calculated to the dried substance.

Manufactured by the Abbott Laboratories, North Chicago, Illinois. U. S. patent applied for.

Ampoules Pentothal Sodium 1.0 Gm. (15½ grains), Buffered with Anhydrous Sodium Carbonate 0.6 Gm.

Ampoules Pentothal Sodium 0.5 Gm. (7½ grains), Buffered with Anhydrous Sodium Carbonate 0.3 Gm.

Pentothal sodium with anhydrous sodium carbonate occurs as a yellowish-white hygroscopic powder, possessing a sulfur-like odor and soluble in water. An aqueous solution of pentothal sodium has an alkaline reaction to litmus; 2.5 per cent in water has a *p*H of 10.4 to 10.9 when determined by the glass electrode.

Dissolve about 0.5 Gm. of pentothal sodium with anhydrous sodium carbonate in 100 cc. of water; add an excess of diluted hydrochloric acid; collect the resultant ethyl (1-methylbutyl) thiobarbituric acid on a filter paper, wash and dry at 70 C.: it melts at 156-159 C. Boil about 0.2 Gm. of pentothal sodium with anhydrous sodium carbonate with 25 per cent sodium hydroxide solution: no evolution of ammonia occurs.

Dissolve about 0.5 Gm. of pentothal sodium with anhydrous sodium carbonate in 50 cc. of water; add 5 cc. of diluted nitric acid and filter through paper: separate portions of 10 cc. each of the filtrate yield a faint opalescence on the addition of 1 cc. of silver nitrate solution *(chloride)*; very slight turbidity on the addition of 1 cc. barium nitrate solution *(sulfate)*. To about 0.2 Gm. of pentothal sodium with anhydrous sodium carbonate in 25 cc. of water add 1 cc. of diluted hydrochloric acid, filter through paper; the filtrate yields no coloration or precipitation on saturation with hydrogen sulfide *(salts of heavy metals)*.

Dry about 0.5 Gm. of pentothal sodium with anhydrous sodium carbonate, accurately weighed, at 70 C., for twenty-four hours: the loss in weight should not exceed 2 per cent.

Transfer about 0.3 Gm. of pentothal sodium with anhydrous sodium carbonate, accurately weighed, to a suitable Squibb separatory funnel; add 50 cc. of water, followed by the addition of 10 cc. of diluted hydrochloric acid; extract with six successive portions of chloroform using 25 cc., 25 cc., 20 cc., 15 cc., 15 cc. and 10 cc., respectively, evaporate the combined chloroformic extractions to dryness in a stream of warm air and dry to constant weight at 70 C.: the percentage of ethyl (1-methylpropyl carbonyl) thiobarbituric acid should correspond to not less than 84 per cent nor more than 87 per cent when calculated to the dried substance.

Transfer the acidulated aqueous portions from foregoing immiscible extraction to a suitable flask, heat on steam-bath to remove the extracting solvent; add 50 cc. distilled water, previously boiled, and titrate with tenth-normal hydrochloric acid using methyl-red as an indicator: the percentage of sodium corresponds to not less than 10 per cent nor more than 10.7 per cent calculated to the dried substance.

THE CASE OF ASA BRUNSON VS. MORRIS FISHBEIN

(Concluded from page 233)

TESTIMONY OF DR. CLARENCE W. MUEHLBERGER ON DIRECT EXAMINATION

By Mr. Harrell:

Clarence W. Muehlberger, Chicago, chemist and toxicologist, stated that he graduated in a course in chemical engineering from the Armour Institute of Technology in Chicago, receiving a degree of bachelor of science in 1920. He then did graduate work in chemistry and toxicology at the University of Wisconsin, receiving a degree of master of science in 1922 and doctor of philosophy in 1923. He is a member of the American Society for Pharmacology and Experimental Therapeutics, American Public Health Association, the Society for Experimental Biology and Medicine, American Medical Association and Society of Medical Jurisprudence. He has a laboratory in the Cook County Morgue, in Chicago, at the Cook County Hospital. He has been affiliated as staff toxicologist for Cook County Hospital since 1930, and associate professor of toxicology and pharmacology in Northwestern Medical College since 1930. He has been lecturer in toxicology at the University of Illinois College of Medicine in Chicago for five years. He has been professor and lecturer in toxicology in the University of Chicago Medical School four years, and for the last five years has been lecturer in forensic chemistry in Northwestern University Law School.

Q.—Doctor, will you tell us a little more about what the work is of a toxicologist? *A.*—It consists in analyzing materials from persons' bodies for poisons or in some instances analyzing medicines or any other constituent, any other material, to find out whether or not they contain poison and also to find out what they do contain.

Q.—And in a general way can you tell us what the work is of a chemist? *A.*—There are various kinds of chemists. There are analytical chemists, organic chemists, oil chemists. The field of chemistry is very well specialized, so the work of a chemist varies depending on what particular kind of chemistry you mean.

Q.—The chemistry which has to do with the analyzing of medicines to determine their composition. *A.*—The analyzing of medicine or of anything else involves the finding out what the substance is in the medicine or the substances and finding out how much of each particular substance is contained in the medicines. The first part is to find out what is in the mixture and the second to find out how much is in the mixture.

Q.—In your work, Doctor, in Chicago do you have occasion to analyze medicines? *A.*—Yes, that is part of my regular work.

Q.—Can you tell us on an average about how many analyses you make of medicines within the course of a given time, say within six months or a year? *A.*—I couldn't give you any exact figure. Certainly, since I have been in this work I have analyzed over 100 medicines.

On May 13, 1939, he met Mr. E. M. Burke in Chicago and obtained from his hands certain specimens of liquid for analysis. Besides himself and Mr. Burke, Dr. Lloyd Harris of the University of Oklahoma was there and Dr. Sidwell of the American Medical Association Chemical Laboratory. He took the specimens back to the laboratory and analyzed them. On May 17 he met Mr. James H. McCoy in the laboratory in the Cook County Morgue, Chicago. Mr. McCoy gave him a package containing a red cardboard box labeled "De Vilbiss No. 15 Atomizer." Inside the box was an atomizer and a rubber connecting tube without the rubber bulk and a 2 ounce medicine vial which had a black composition screw stopper. The medicine vial was about three fourths filled with a colorless liquid. When he first saw the vial it was sealed across the top with some white tape or paper-like material, around which was some white adhesive tape, surgical adhesive tape, bearing the pen and ink letters "F. P. M. 8-15-38."

Q.—You do not know what those figures denote do you? F. P. M.? A.—I would judge it was the initials of F. P. McCoy and the figures were the dates, eighth month, 15th day, year 1938.

Q.—Did you make a chemical analysis of the contents of these bottles together or did you separate them and make separate analyses of the bottle received from Mr. McCoy, that is, a different analysis, a separate one from that of the other two bottles? *A.*—I made three separate analyses, one for the contents of each of the three bottles which I have mentioned.

Q.—Will you tell us briefly, Doctor, what you did in making these analyses? *A.*—The first thing I did was to arbitrarily designate Mr. McCoy's specimen as sample A so I would not mix it up with samples B and C. Then I examined them by looking at them, by tasting them, by smelling them and by testing their solubility, that is the ability to dissolve them in various other liquids. I found that these three liquids were all rather oily, syrupy, colorless liquids, which had no dissolvable matter. In other words, they were clear like water but somewhat thick and oily. When I smelled them I noticed a definite odor of terpenes such as oil of eucalyptus, which has a typical odor, and some suggestion of menthol because when I smelled it I not only noticed the menthol odor but the rather cooling after effect which is typical of menthol or mint camphor. I tested the liquid by tasting and was also able to identify by this tasting a substance which tasted like oil of eucalyptus and also I noticed the cooling effect of menthol, especially in the after tasting, after the first rather terpene tasting had worn off. I then tried the various oils to see how they would react with solvents, first trying water, which I found would not dissolve to any extent any of the constituents of any of the three medicines, either A, B or C. I tried 95 per cent alcohol, which is the usual strength of alcohol used in medicine, and found that alcohol would not completely dissolve the medicine but would extract from the medicines certain fractions, which when the alcohol was evaporated off gave me a residue which had a strong odor of oil of eucalyptus and menthol and some other terpene-like odor which I couldn't positively identify. Alcohol also extracted some of the oily material, as I discovered when I took the alcohol extractions, evaporated it on a steam bath until all of the smell was gone and then examined the residue in my evaporating dish. I found it to be an oily residue, colorless, odorless and not attacked by alcohol, caustic soda or alcohol sodium hydroxide solution, which indicated it was not a vegetable oil or animal oil but mineral oil, what we call ordinary mineral oil. I then proceeded to try to take the specimens apart by selective solvents; not only did I use water and 95 per cent alcohol, but I found certain other solvents would completely dissolve all three of the medicines. For instance, anesthetic ether, such as used in hospitals, would readily dissolve all three of the medicines equally well, that acetone would dissolve all three of the medicines equally well, that ethyl acetate only partially dissolved the medicines, that glacial acetic acid would only partially dissolve the medicine, apparently extracting from the medicine only the odor principles, the material which had a strong odor, because when I took the acetic acid extract which separated out below the medicine, when I shook them together in a flask, or in a flask known as a separatory funnel, I could draw off the acetic acid layer and bring with it the materials which smelled in the medicines, the material which smelled of oil of eucalyptus, which smelled of menthol or mint camphor and which smelled of terpene-like substances. Then when the acetic acid was neutralized with caustic soda I was able to extract those with purified sulfuric ether and thereby separate them, so in this way I was able to separate the medicine in its various constituents to a fair degree to find out what materials were there. I also took the various medicines and made the studies of their physical properties. I examined the relative heaviness of the three medicines, what we call specific gravity, and found them all to be essentially the same specific gravity, within one unit in the third decimal of 0.847, because all had practically the same heaviness. In other words, they were lighter than water and about 0.85 as heavy as water at 25 degrees centigrade. I also measured the ease with which these three liquids would transmit light. We have in the laboratory an instrument known as a refractometer, which measures the refraction index of the light, which measures the speed in which light will pass through the liquid, and that figure and that value are characteristic of different liquids. I found all three of the liquids had the same refractive index, which at 25 degrees centigrade was 1.464 to within one unit of the third decimal place. So from the standpoint of physical constants and from their odor and smell and taste and behavior toward solvents, these three liquids, A, B and C, appeared to be identical; that is, they were all essentially the same type of medicines.

Q.—Did you finally complete your analysis of each of these three bottles of medicine? *A.*—Yes, I went further to try and estimate as best I could with the amounts of specimens

approximately how much of the various constituents were present and also to satisfy myself there were no other substances present in any appreciable quantities. I distilled the specimen in a distillate flask by heating it with a gas burner until it began to boil and then cooling the vapors that came off the boiling liquid in a water cooled tube and catching the vapors as they turned back to liquid and examined them. I found with a 5 cc. specimen, which is a little over a teaspoon, I got about 0.2 cc. of distillate, which would correspond to about 4 per cent of the material I was able to drive over by the distillation process at temperatures below 300 degrees centigrade. When I heated the flask higher than 300 degrees centigrade, the colorless mixture began to darken and give off a smoke and I got more distillate which smelled of a decomposing petroleum compound, indicating the petroleum oil or mineral oil was being destroyed by the heating process. I then took another specimen of each of the three liquids and steam distillated them. I passed steam into the flask, which steam as it passed through the specimen would take with it the easily evaporated constituents of the medicines and then by cooling the material down in a condenser I was able to collect the water and with the various constituents which the steam took from the medicine. I examined these distillates to see what they contained not only by smelling and tasting them but by chemical tests and I also examined the residual liquid which was left in the flask into which I passed the steam. I found after steam distilling all of the odors had been eliminated, driven over by the steam, and the material that was left had all the properties of what we call light mineral oil or liquid petrolatum. The first distillate I collected had a strong odor of oil of eucalyptus and had oily globules which floated on the surface of the water, and on testing these with syrupy phosphoric acid, or 70 per cent, I found they would solidify, indicating and confirming the smell and taste tests I made previously, that the substances contained oil of eucalyptus. I then continued steam distillation. The next distillate had a weaker odor of eucalyptus but a more pronounced odor of menthol or mint camphor and this was confirmed by the vanillin sulfuric acid test which I took, and using a 5 per cent solution of vanillin in alcohol mixed it with some of the distillate, and putting in a test tube, dropping concentrated sulfuric acid into the bottom of the test tube with a long cylindrical dropper, so the two layers were kept separate, and where the two layers came together I found a reddish orange ring, the upper layer of which was rather lavender coated and that is a test confirmatory for menthol and other similar terpene substances. In the last distillate while I could not obtain any chemical tests indicating terpenes, there was somewhat of an odor of oil of pine, but I could not be absolutely certain. It could be oil of pine and had the odor of terpene.

Q.—To sum up in few words will you tell the Court and jury what your analysis of the medicine which you received from Mr. McCoy contained? *A.*—The analysis together with a synthesis, which means the putting back together of the constituents being completed, I found the three materials are the same and contain about 95 to 96 per cent of mineral oil, that is known as light liquid petrolatum, colorless. Dissolved in that is a small amount of oil of eucalyptus and my best judgment of the amount of oil of eucalpytus present is around 3 cc. or 3 per cent by volume, but it might be a little lower or a little higher and there is also menthol, mint camphor, present to the extent of around 1 per cent, it might be a little higher or it might be a little lower, and there is some flavoring which I am not certain of the composition of. It is a terpene-like material which smells a good deal like oil of pine. What that flavor is I cannot be absolutely certain.

Q.—What did your analyses of the medicines which you received from Mr. Burke disclose, together with the percentages? *A.*—All three of the medicines as far as I could determine were exactly alike. They all contained 95 to 96 per cent—that cannot be determined with absolutely accuracy because of the difficulty in evaporation by distillation—of oil of petrolatum, approximately 3 per cent of oil of eucalyptus and approximately 1 per cent, possibly a little less, of menthol with some flavoring.

CROSS EXAMINATION

By Mr. Sweeney:

Q.—When did you arrive in El Paso, Doctor? *A.*—Tuesday, Tuesday of this week.

Q.—You have been here at the Hotel Hilton ever since? *A.*—Yes, except when I have—

Q.—Are you a member of the American Medical Association? *A.*—Yes, I am, didn't I testify to that?

Q.—Yes, I am just reasking the question. Do you hold any official position with the American Medical Association? *A.*—No, I do not.

Q.—Are you connected with it in any other way than being a member? *A.*—No, I just happen to be one of the few men not M.D.s who are members of the society.

Q.—Do you do any considerable amount of work for them? *A.*—No, this is the first time I have been asked to be of any help to them in any way.

Q.—Who asked you to come out here, Doctor? *A.*—Mr. Burke.

Q.—Your expenses are being paid by Mr. Burke or the American Medical Association? *A.*—As far as I know Mr. Burke is paying them. You will have to ask him about that.

Q.—You have received pay for the analyses you made? *A.*—I have not.

Q.—You expect to? *A.*—I expect to be paid for my time, that is customary.

Q.—Doctor, who have you talked to since you have been in El Paso with reference to your analyses? *A.*—Well, I probably have spoken to a number of people. I don't know that I can tell you all of the people I have spoken to. I have spoken to the various attorneys, Mr. Harrell and his associates and I believe I have talked to Mr. McCoy and I may have said something to Dr. Fishbein. Up until this morning I probably said something to Dr. Harris and possibly others. I couldn't be certain.

Q.—Did you and Dr. Harris have a talk in Chicago with reference to the analysis that he was to make and you were to make? *A.*—I expect we did. We certainly both understood that we were to make a chemical analysis of the substance.

Q.—Did you make any comparison with reference to your result and his result? *A.*—Not until after the results were done.

Q.—Did you talk to Dr. Leech? *A.*—Yes, I have talked to Dr. Leech.

Q.—Did Dr. Leech tell you what chemical analysis was made by Dr. Schoeffel? *A.*—I believe he did. I am not certain.

Q.—He indicated to you the constituents that Dr. Schoeffel had determined or ascertained was in the medicine? *A.*—I think he did.

Q.—When you went to Mr. Burke's office who told you to go there and what was the occasion? *A.*—As far as I know Mr. Burke told me. I am not clear on that.

Q.—You do not remember? *A.*—No.

Q.—You do not know what the occasion was for you to go there? *A.*—As I recall it Mr. Burke or some one of his firm called me up and asked me if I would participate in the case; at least he made arrangements to be there and to receive the samples from his hands personally.

Witness excused.

DEPOSITION OF MAURICE TROUT: DIRECT EXAMINATION

Taken in Little Rock, Arkansas, on May 8, 1939.

Questions by Mr. Harrell:

Maurice Trout, advertising clerk, *Arkansas Gazette*, testified that he has charge of the old newspapers that are ordinarily kept in what's commonly known as "the newspaper morgue." He identified issues containing an advertisement headed "A Prominent Little Rock Physician," which advertisement is signed "Arkansas Drug Company," also *Arkansas Gazette*, Friday, Aug. 10, 1923, an advertisement over the name of "Arkansas Drug Company," which is headed "One of Many Testimonials to Doctor Asa Brunson's Treatment for Tuberculosis," also *Arkansas Gazette*, Saturday, Aug. 11, 1923, an advertisement headed "Another Testimonial to the Doctor Asa Brunson Tuberculosis Treatment," by the "Arkansas Drug Company."

Mr. Reynolds:—At this time we wish to read to the jury one paragraph from Defendant's Exhibit 13, which has been identified by the plaintiff in this suit, an article entitled "New Tuberculosis Cure Tried in El Paso with Results Beyond Belief." It is the El Paso *Times* of June 19, 1921. The plaintiff's testimony being the material contained in said article was furnished to the writer by him.

[After debate the Court permitted the reading.]

Mr. Reynolds:—The complete paragraph relating to Mr. McCrary reads:

"One of the remarkable cures effected in El Paso was that of James F. McCrary, a former service man, now living in El Paso. Mr. McCrary, who is 25 years old, was formerly

a cattleman at Hamilton, Texas. He contracted tuberculosis after a gas attack in France in November 1918. His case was diagnosed by Dr. Bolding as tuberculosis in August 1920, and later the diagnosis was confirmed by Dr. Shortall at Albuquerque, N. M., and by physicians in the army vocational department at Dallas. He was found to be in no condition to take vocational training and in January of this year he was recommended for full compensation, which he received. He began taking the Holderness treatment April 4 and was discharged as cured May 17. He is now taking vocational work in El Paso. In response to an investigator's questions Mr. McCrary wrote the following:

"To whom it may concern: This is to certify that I was in the Sixth Marines and was gassed in France in November 1918. Had difficulty at times in breathing until I was treated by Drs. Holderness and Brunson. I have not experienced any trouble since the first treatment and have been discharged over thirty days. I was also diagnosed as a tubercular by the army board of surgeons and have been discharged by Drs. Holderness and Brunson as cured so far as can be determined at this time.'"

***Mr. Quaid:*—We would like for the record to show we have a further objection, that it was the Holderness treatment instead of the Brunson treatment.**

***The Court:*—Well, the Court is waiting for that connection. The Court, is informed that it will be connected up. The Court will say right now if it is not shown to be a treatment that Dr. Brunson was connected with—we have had testimony in the case they were connected together at a certain time—if it was distinctly a Holderness treatment it would not be chargeable to Dr. Brunson.**

***Mr. Reynolds:*—May I refer the Court to the testimony already in the case regarding an oily substance. That is what I had in mind.**

***The Court:*—We will endeavor to gather together in a simple summary this matter as we go along.**

***Mr. Reynolds:*—The deposition of James F. McCrary, taken before Jack K. Tingle, a Notary Public in and for the County of Dallas, in the Dallas National Bank Building.**

DEPOSITION OF JAMES F. MC CRARY: DIRECT EXAMINATION

By Mr. Harrell:

James F. McCrary, Dallas, Texas, formerly in the warehouse brokerage business, until three years ago, when he had to go back to the hospital, stated that he was acquainted with Dr. Asa Brunson of El Paso. He first became acquainted with him sometime in 1921 in a drug store in El Paso, Texas. He was associated with two other men in the drug business and was a "silent partner." He knew Dr. Bolding very well as his family physician at Hamilton, Texas. He and Dr. Bolding went to El Paso at that time on account of lung trouble.

Q.—Now, let's get to the meeting with Dr. Brunson in the drug store. Tell us the circumstances under which you met him there. *A.*—Well, he was opening an office—I forget the name of the building but it was just around the corner from our drug store.

Q.—Was that the Caples Building? *A.*—I believe that is the name; I am not quite sure.

Q.—Did you have a conversation with Dr. Brunson at that time? *A.*—On several occasions I had conversations with him before I started taking treatments from him.

Q.—Did you discuss with him on the occasion of this first meeting the matter of taking "T. B." treatments? *A.*—No, sir.

Q.—Do you recall when you first discussed with him about being treated for "T. B."? *A.*—Well, he stayed around the drug store there for a month or six weeks and he wasn't permitted to practice in Texas because he didn't have a license, so he persuaded Dr. Bolding to use his license and to go into the office with him so that they could open an office and practice medicine. In other words, Dr. Bolding was to write the prescriptions or you know what is the necessary procedure that they had to go through until he could get his license in Texas, and Dr. Bolding went up there and he started taking the treatments and he gained 7 or 8 pounds, but he never was convinced that it was—he told me that it was a stimulant more than anything else—

***Mr. Quaid:*—Just a minute.**

***Mr. Reynolds:*—We won't read the balance of that answer. It is hearsay.**

Q.—Did you take it? *A.*—So I took the treatment for about five weeks. Up in his office one day—

Q.—Well, now, wait a minute; tell us about the technic, how he administered the treatment—just what did the Doctor do? *A.*—With an atomizer.

Q.—Describe how he used the atomizer? *A.*—He put the atomizer in my throat and in my nose, in nostrils and—

Q.—When he put the atomizer in your mouth, what did you do, if anything? *A.*—Well, at times, I would swallow some of the stuff and it is pretty darn bittter; that's one thing.

Q.—I mean by that, what would you have to do in order for the medicine to enter? *A.*—Inhale.

Q.—Inhale? *A.*—Yes.

Q.—And what else? *A.*—That was all there was to it.

Q.—How often would you take these treatments? *A.*—Every day.

Q.—Did you know what the treatment consisted of, the ingredients of the treatment? *A.*—I had no idea.

Q.—The doctor never told you the composition of the fluid? *A.*—No, sir; secret formula that he was supposed to have.

Q.—And you took this treatment for how long a period of time did you say? *A.*—Four or five weeks.

Q.—And you took them twice a day for that length of time? *A.*—Once a day.

Q.—Did you pay the doctor anything for the treatments? *A.*—Not a dime.

Q.—He didn't charge you anything? *A.*—No, sir. He did ask me to encourage others.

Q.—Mr. McCrary, did you have any conversations with Dr. Brunson during the time—? *A.*—Yes; every day.

Q.——that you were submitting to the treatments? *A.*—Yes; every day.

Q.—I am referring to conversations as to whether or not the treatment was doing you any good? *A.*—Well, he—I don't remember about that, but I will say this; he never gave me a chest examination all of the time I was there, either before I took the treatment or afterwards.

Q.—You mean that he didn't examine you at all? *A.*—No, sir.

Q.—At any time? *A.*—No, sir.

Q.—He didn't do anything at all in the way of examination? *A.*—Nothing at all only give me the inhalations; he didn't know whether I had lung trouble or not only from what the others said—just my general record.

Q.—Did you take any medical records with you there? *A.*—No, sir; none at all.

Q.—Now, prior to going to Brunson, had you been examined before by any physician? *A.*—Yes; I had just left the hospital at Albuquerque, New Mexico, about two months previous to that.

Q.—Did they examine you while there? *A.*—Yes.

Q.—Did they diagnose your ailment? *A.*—As lung trouble, yes; also by Dr. Bailey at Hamilton.

Q.—What had been your physical condition prior to that time?

***The Court:*—We have been laying off of this proposition of a layman saying what was his condition. We don't want to open this thing up.**

Q.—What do you mean by "this thing"? *A.*—Headlines in the paper came out. The medical board, knowing that I had taken this treatment, called me up there and they questioned me about it, and they explained to me that the reason that I was gaining weight was the psychology it would have on me, the possibility of gaining some relief.

Q.—I show you, Mr. Witness, the newspaper article with the headline "New Tuberculosis Cure Tried in El Paso with Results Beyond Belief," which is purported to have appeared in the El Paso *Times* newspaper of June 19, 1921, and I will ask you if you have ever seen that article before? (Counsel hands paper clipping to the witness.) *A.*—Yes; I saw that all right.

Q.—So you recall seeing this article (indicating)? *A.*—Yes; I saw that article.

Q.—Now, I notice here, Mr. Witness, that there is, among other statements in this article a specific reference to a Mr. James F. McCrary, a former service man, now living in El Paso; that particular part of the article is headed "Ex-Marine Saved from Grave"; I will ask you if that James F. McCrary referred to in the article is yourself? *A.*—Yes, sir.

Q.—I will ask you to read that portion of the article pertaining to yourself and tell us, if you please, if the statements contained therein are true? *A.*—I was with the Sixth Marines; I was gassed but I wasn't relieved from them as a "cure"; I stopped taking the treatment.

Q.—By "them," who do you refer to? *A.*—Dr. Brunson and Dr. Holderness.

Q.—Drs. Holderness and Brunson? *A.*—Now, then, I would like to make a correction. This statement is supposed to be sworn to that I signed, see. I would like to tell you how that came up.

Q.—You mean the statement that is referred to in the article which you are now holding in your hand? *A.*—Yes, sir.

Q.—You mean the statement which is headed "To Whom it May Concern"? *A.*—Yes; I would like to tell you how he got that statement.

Q.—And your explanation is that Dr. Brunson got you—? *A.*—I went up to his office one day;———

Mr. Quaid:—Just a minute now. Your Honor please, that answer there is not responsive; in fact it is not based on any question. It was a question started by counsel and never was completed.

Mr. Reynolds:—Counsel was interrupted by the witness there obviously.

Mr. Quaid:—It is not responsive.

The Court:—What is the purpose, on what ground do you offer all of this matter?

Mr. Reynolds:—Here is the theory—

The Court:—Is there any statement Dr. Brunson furnished—was not asked when he was on the stand—I can't see the materiality of a lot of that testimony.

Mr. Reynolds:—Well, Dr. Brunson did identify that article, and whether or not he furnished the information this witness identifies that statement which further connects Dr. Brunson. That statement is published, then he goes on to show how that statement was procured, and to show Dr. Brunson's general character, reputation and advertising. Among other things it is in mitigation of damages.

The Court:—No. I will have to hear from you out of the hearing of the jury. Have you not some other deposition? The Court wants to get along with as much rapidity as we can. The Court has serious question about a large portion of that deposition, and would like for you gentlemen to carefully consider it before you undertake to offer it.

TESTIMONY OF DR. F. P. MILLER ON DIRECT EXAMINATION

Questions by Mr. Brown:

Dr. F. P. Miller stated that he has resided in El Paso, Texas, since 1904. He graduated from the Medical Department of the University of Texas in 1899. He is a member of the local and of the state and of the American Medical association. He met Mr. McCoy and Sadie Hayes and gave a bottle of medicine to Mr. McCoy in the presence of Sadie Hayes. The medicine was obtained from Miss Hayes in August. He marked the bottle F. P. M. with the date.

Q.—Do you know, are you acquainted with the general reputation of Dr. Asa Brunson, the plaintiff in this case, in this community as a physician and surgeon? *A.*—I have met him a few times, very slightly.

Q.—Are you acquainted with his general reputation? *A.*—Yes, sir.

Q.—Is that good or bad? *A.*—For the treatment of diseases as a doctor, it is not good.

Mr. Quaid:—I would like to exclude that answer, it wasn't responsive.

The Court:—It is not responsive, the question is whether it was good or bad.

Mr. Brown:—That is right, it is not responsive.

The Court:—Reform the question.

Q.—Do you know the general reputation of Dr. Asa Brunson, the plaintiff in this case, in this community, with reference to the practice of medicine and comporting to the ethics of the American Medical Association, general ethics of the medical practice?

Mr. Quaid:—I don't think we are bound by the ethics of the American Medical Association.

The Court:—The Court sustains the exception.

Q.—Strike out the words American Medical Association. Do you know the general reputation of Dr. Asa Brunson, the plaintiff in this case, in this community, as to being an ethical practicing physician and surgeon? Answer that yes or no, do you know the general reputation? *A.*—Yes, sir.

Q.—Is it good or bad? *A.*—It is bad.

CROSS EXAMINATION

By Judge Sweeney:

Q.—When you answered with reference to his ethics, you know his reputation, what do you mean, Doctor, by his ethics? *A.*—His general demeanor in regard to the practice of medicine, claiming to cure tuberculosis with inhalation of oil.

Q.—And you think that a man who claims to cure anything is not ethical? *A.*—By a secret remedy, I consider it unethical.

Q.—Doctor, when you came here you advertised a whisky cure? *A.*—No, sir.

Q.—Never did? *A.*—No, sir.

Q.—Didn't you specialize in curing for liquor habits? *A.*—No, sir, other people did it for me.

Q.—You never advertised at all? *A.*—No, sir.

Q.—You had other people advertise for you? *A.*—I read a paper before the medical society on it.

Q.—You are a member of the A. M. A. organization? *A.*—Yes, sir.

Q.—You are also a member of the local, the state and the national? *A.*—Yes, sir.

Q.—What position, if any, do you hold with the local? *A.*—I have no official position at this time with the local association.

Q.—You have had in the past? *A.*—Yes, sir.

Q.—What was it? *A.*—Secretary and president and delegate.

Q.—What do you hold or have you held with the state medical association? *A.*—President and delegate.

Q.—What have you held or do you now hold with the national organization? *A.*—I have none.

Q.—Have you held any in the past? *A.*—No, sir.

Q.—You obtained this medicine from Miss Hayes, is that the name? *A.*—Sadie Hayes.

Q.—How long was it in your possession? *A.*—Just the same day.

Q.—What? *A.*—The same day.

Q.—How did you come to get that medicine, Doctor? *A.*—We were discussing it.

Q.—Who are "we"? *A.*—Miss Hayes and I.

Q.—You were discussing Dr. Brunson, were you? *A.*—I asked her if she had any of the remedy and she said no.

Q.—Did you send her out to get some of the remedy for you? *A.*—I asked her if she could secure a bottle and she said she thought she could.

Q.—Who had requested you to try and secure a bottle? *A.*—I was very much interested.

Q.—And in this case now? *A.*—Certainly.

Q.—You are very much prejudiced in favor of the defendant, Dr. Fishbein? *A.*—I try not to be.

Q.—I asked if you are? *A.*—I would say no.

Q.—You are absolutely impartial? *A.*—As far as a man can be.

Q.—How far can you be? *A.*—All the way.

Q.—But you are very much interested? *A.*—Yes, sir.

Q.—What is the nature of your interest? *A.*—If Dr. Brunson or any one else has a cure for tuberculosis, I would like to know it.

Q.—That is the extent of your interest? *A.*—Yes, sir.

Q.—You want to see whether or not he has a cure, is that the idea? *A.*—Yes, sir.

Q.—Now, Doctor, you have talked considerably about Dr. Brunson, haven't you? *A.*—Very little, Dr. Brunson and I just are acquainted. I don't think I met him three times in my life.

Q.—You have discussed him various times and denounced him? *A.*—I said I didn't believe his remedy was a cure for tuberculosis, and I still think that.

Q.—How did you refer to him; you did make statements? *A.*—Just like that, I didn't believe he had a cure for tuberculosis.

Q.—You have been going around secretly, fighting Dr. Brunson? *A.*—No, sir.

Q.—And seeking to condemn his practice? *A.*—No, sir, I have done very little of it.

Q.—When did you meet Mr. McCoy? *A.*—I can't say the first time, but this last year, in the middle of the year, July or August.

Q.—Did he just wander in your office or did you send for him? *A.*—He came to see me.

Q.—Why did he come to see you? *A.*—He was looking up evidence in this case.

Q.—And he had heard about your talk? *A.*—I imagine that the central office gave him my name.

Q.—You had communicated with the central office? *A.*—Not at that time about this.

Q.—He came to see you, and what did he request of you? *A.*—For me to help or assist him in any way in securing evidence for or against and get some of this remedy.

Q.—Did you seek any evidence for? *A.*—For the remedy.

Q.—With reference to Dr. Brunson's treatment, the efficacy of his treatment? *A.*—I haven't heard that discussed for years.

Q.—You sought for evidence against the efficacy of his treatment? *A.*—I wanted to get some of the oily spray he is using.

Q.—You sent this young lady out to get it? *A.*—I asked her to get it.

Q.—She was in your employ? *A.*—No, sir.

Q.—At no time? *A.*—I think one time, when my stenographer was away, she worked there.

Q.—She was a patient of yours? *A.*—She was a patient of mine for a long time.

Q.—Did you predicate your statement that his reputation was bad because he claimed to have a cure for tuberculosis? *A.*—Mainly, one that he wouldn't publish the formula and let the rest of us know what it was.

Q.—One you couldn't get? *A.*—Yes.

***Mr. Reynolds:*—At this time we would like to read certain testimony from Defendant's Exhibit D-14, which was identified by the plaintiff. I wish to read one of his testimonials right now. "El Paso *Times*, August 10, 1924." The title of the article is "Shadows of the Dark Ages Still Cast Their Pall," and down after the body of it there are several testimonials; we are reading one:**

**Little Rock, Ark.
Nov. 17, 1922.**

**Mr. W. K. McMullen,
Little Rock, Ark.**

Dear Mr. McMullen:

Two of our Sisters have been treated by Dr. Brunson for tuberculosis. One Sister has entirely recovered and the other has been greatly benefited by the treatment.

**Sister Superior
Mount Saint Mary's Convent
and Academy.**

DEPOSITION OF SISTER MARY FIDELIS

Direct examination taken on May 1, 1939, at St. Louis, Mo.

Questions by Mr. Harrell:

Sister Mary Fidelis of the Convent of Mercy, Webster Groves, Mo., stated that she is one of the councilors on the provincial council of the convent. She lived in Little Rock, Ark., in 1923 in Mount St. Mary's Academy, where she was Mother Superior. She was acquainted with Sister Rosalie Bradley in 1923 in St. Mary's Convent in Little Rock, Ark. She died in May 1923 of tuberculosis.

***Mr. Quaid:*—I object to that.**

***The Court:*—The Court sustains the exception.**

Q.—Where was she when she died? *A.*—Mount St. Mary's Academy, Little Rock.

Q.—I show you what purports to be page 7 of the *Arkansas Gazette* of Little Rock, Arkansas, Saturday, August 11, 1923, which has been marked Defendant's Exhibit A of this date, and ask you to refer to an advertisement in the upper right hand corner of the exhibit with the heading "Doctor Asa Brunson. Tuberculosis Treatment." Do you see that? *A.*—I do.

Q.—And I notice that in that advertisement there is a testimonial which reads as follows:

November 17, 1922.

**Mr. W. K. McMullen,
Arkansas Democrat,
City:**

Dear Dr. McMullen:

Two of our Sisters have been treated by Dr. Brunson for tuberculosis. One Sister has entirely recovered and the other has been greatly benefited by the treatment.

**Signed Sister Superior,
Mount St. Mary's Convent and
Academy, Little Rock, Ark.**

Q.—Do you know anything about that testimonial? *A.*—I have no recollection whatever of it.

Q.—Can you recall of ever signing such a document or testimonial? *A.*—No, I cannot.

Q.—And on that date, November 17, 1922, you were the Mother Superior of Mount St. Mary's Convent and Academy, were you not? *A.*—Yes, sir.

Q.—Do you know of any other Sister connected with Mount St. Mary's Convent who died of tuberculosis along about that time or afterward? *A.*—No, I do not, I just cannot recall the date of death. It was within that six years, but I could not tell you what date.

Q.—Do you know what doctor treated Sister Rosalie Bradley for tuberculosis? *A.*—No, that I don't remember either. I remember there was a doctor came to Little Rock by the name of Brunson. I just remember the name and I know Sister consulted him and went to his office but I cannot tell you now whether she was under the care of any other doctor or not. I do not carry things in mind that length of time.

Q.—And you do not recall of having signed any such testimonial as appears here on Defendant's Exhibit A, is that right? *A.*—No.

Q.—If there had been a testimonial of this sort given would it have been signed as this one is signed? *A.*—No, not customarily, not usually.

Q.—Customarily and usually how do you sign in your capacity as Sister Superior? *A.*—The individual name.

***Mr. Quaid:*—We offer the cross interrogatories propounded to Sister Mary Fidelis, Convent of Mercy, Webster Groves, Missouri.**

Fourth Cross Interrogatory:—Is it not a fact that the statement given by a Catholic sister was a testimonial given by Mother Ursula, who was then Sister Superior, Mount St. Mary's Academy, Little Rock, Arkansas, and she is now at St. Edwards Mercy Hospital, Fort Smith, Arkansas? *A.*—I know nothing of such a testimonial.

Fifth Cross Interrogatory:—If you answer the foregoing interrogatory in the affirmative, then state if it is not a fact that the testimonial referred to Sister Philippa, who was critically ill with tuberculosis and was sent to a Catholic infirmary to remain until she died, at Hot Springs, and that Mother Ursula then communicated with Dr. Brunson and he agreed to treat her, without charge; that Sister Philippa had tuberculosis of both lungs, had about twenty-five tubercular abscesses on her neck and chest, a few of which had been lanced and would not heal; that on the 3d day of July 1922 Sister Philippa began treatment by Dr. Brunson, that in three weeks thereafter the abscesses were cured, that after two months' treatment of her lungs she was dismissed by Dr. Brunson, a completely cured case. She resumed teaching on or about the 15th of September 1922, and has been well and teaching ever since. *A.*—I have no recollection of it.

Sixth Cross Interrogatory:—Is it not a fact that Sister Philippa is now Sister Superior at St. Anne's Convent, Fort Smith, Arkansas, alive and well seventeen years after her cure by Dr. Brunson. *A.*—No, she is not.

RE-DIRECT EXAMINATION

Q.—Again, I want to ask if you were Sister Superior of Mount St. Mary's Academy, Little Rock, Arkansas, on November 17, 1922? *A.*—I was.

Q.—And were you also Sister Superior of Mount St. Mary's Academy, Little Rock, Arkansas, on August 11, 1923? *A.*—I was.

Q.—When was Mother Ursula Sister Superior of Mount St. Mary's Academy? *A.*—From 1932 to 1938.

Q.—Was she at Mount St. Mary's Academy, Little Rock, Arkansas, in 1922 and 1923? *A.*—Yes.

Q.—What did she do there? *A.*—She was the Mother Purser.

Q.—And was Sister Philippa there at that time? *A.*—She was, yes.

Q.—In what capacity? *A.*—Teacher.

Q.—Is Sister Philippa now Sister Superior at St. Anne's Convent, Fort Smith, Arkansas? *A.*—No, she is not.

Q.—Do you know where she is now? *A.*—Yes, she is teaching at the Immaculate Conception School in Fort Smith.

Q.—Do you know what the condition of her health is now? *A.*—It is fairly good.

***Mr. Reynolds:*—I want to read another testimonial in the same exhibit.**

**Pulaski County Hospital,
Little Rock, Ark.,
November 24, 1922.**

**Dr. Asa Brunson,
Little Rock, Ark.**

Dear Doctor:

It gives me pleasure to recommend your treatment to any one afflicted with tuberculosis, as I have seen some very remarkable results from your treatment in the patients treated at the County Hospital.

Wishing you continuous success in your great undertaking.

**Fraternally yours,
H. O. Turrentine, M.D.,
Assistant Superintendent.**

DEPOSITION OF DR. HUGH OLIN TURRENTINE ON DIRECT EXAMINATION

Taken May 8, 1939, at Little Rock, Ark.

Questions by Mr. Harrell:

Hugh Olin Turrentine, North Little Rock, Ark., specialist in eye, ear, nose and throat, M.D., attended Kansas City College of Medicine and Surgery and Arkansas University and was admitted to practice in Arkansas in 1920.

Q.—You are acquainted with Dr. Asa Brunson? *A.*—Yes, sir.

Q.—When did you first become acquainted with him? *A.*—I became acquainted with him when I went out to the Pulaski County Hospital as assistant superintendent under Dr. Mason.

Q.—And when was that? *A.*—I believe it was in the year 1922, if I am not mistaken, sir.

Q.—And how long were you out there as assistant superintendent at that hospital? *A.*—I think it was between six and nine months, if I am not mistaken.

Q.—Did you have any dealings with Dr. Brunson during the time you were out at the Pulaski— *A.*—Some.

Q.——hospital? *A.*—Some.

Q.—What was the nature of those dealings, Doctor? *A.*—Well, I examined patients down there twice at his request.

Q.—Whose patients were those? *A.*—Pulaski County, I presume.

Q.—What interest did Brunson have in those patients? *A.*—He was—if I understand it right, he asked Dr. Mason to give him permission to treat the tubercular patients for a period of time—certain length of time.

Q.—To treat his patients? *A.*—The patients at the Pulaski County Hospital.

Q.—And do you mean, Doctor, that Dr. Brunson requested Dr. Mason to— *A.*—Allow him the privilege—

Q.——allow him the privilege of administering the Brunson treatment— *A.*—That's right.

Q.——to the patients in the Pulaski Hospital? *A.*—That's right.

Q.—And do you know that that was done? *A.*—I know that he treated some patients out there.

Q.—Do you know just when that was? Fix the time— *A.*—I can't—

Q.——as near as you can. *A.*—It was about 1922, because that was the time I was out there.

Q.—Did you personally have anything to do with the treatment of these patients, that is, the administering of the Brunson treatment? *A.*—No, sir. I don't know what it consists of, even.

Q.—Doctor, I show you page five of the El Paso *Times* of Sunday, August 10, 1924, which has been marked "Defendant's Exhibit 22, for identification" on the taking of the deposition of the Plaintiff, Dr. Asa Brunson, in El Paso, on March 8, 1939, and I refer you to what appears to be a testimonial in the lower left corner of this exhibit and I will ask you if you can identify that testimonial. I am referring to the testimonial over the typed—over the printed name "H. O. Turrentine, M.D., Assistant Superintendent." *A.*—I signed the letter for him.

Q.—You did sign a letter for him? *A.*—I did.

Q.—And when was that? *A.*—That was in 1922—like it says there, November 1922.

Q.—Was this the letter that you signed? *A.*—I can't say.

Q.—Now— *A.*—He asked Dr. Mason for a letter of recommendation as to what the treatment was and Dr. Mason talked to me and I told him, well, I wouldn't mind giving him a letter, but I didn't know what it was, though, or anything about it. He had the stenographer there to type the letter—Dr. Mason wrote one. I said about the things you see in there. She typed it and I signed it. I doubt if I ever read it. The lady in the office typed it. Anyway, I signed it, because I signed one for him. I can't say whether this is the one I signed or not.

Q.—How long had Brunson been treating those patients at the time you signed this letter? *A.*—I couldn't say.

Q.—Did you have occasion—or, did you observe the treatment of those patients at that hospital? *A.*—I examined them twice—not all of them, but a few of them.

Q.—Examined them before they submitted to the treatment? *A.*—No, sir.

Q.—Or afterward? *A.*—Afterward.

Q.—Did you examine them before? *A.*—No, sir.

Q.—Before the treatment. *A.*—I had not.

Q.—How many of them did you examine? *A.*—I imagined I examined about five.

Q.—How long had that five been— *A.*—I couldn't say.

Q.——there submitting to that treatment? *A.*—I couldn't say, because I don't know.

Q.—Have you observed the action of Brunson's T. B. remedy on any other patients since that time? *A.*—I have not.

Q.—Tell us, Doctor, just why you gave Dr. Brunson this testimonial. *A.*—Well, Dr. Mason had seen the patients and he was talking to me about it and said that he thought that Brunson was getting some results from it—the treatment out there. I didn't know what the treatment consisted of, or anything else—only I knew they were in bed—rest, sunlight, things like that—proper diet. And I didn't know what the treatment consisted of, and I examined them and those that I examined were free of temperature, and I didn't hear anything particular in the lungs at the time of the examination—however, I didn't see the x-ray or fluoroscope of them, or the laboratory report from the throat before or after.

Q.—Did you continue to observe those same patients— *A.*—I did not.

Q.——afterward? *A.*—No, sir.

Q.—So you couldn't say what caused the drop in temperature? A.—I couldn't.

Q.—And you couldn't say, Doctor, whether or not these persons had arrested cases of T. B.? *A.*—I couldn't say whether they had tuberculosis or—whether they had it or not.

Q.—You couldn't say about that—if they had tuberculosis when they first came to the hospital? *A.*—I couldn't. I did not examine them.

Q.—Did you give Dr. Brunson any other letters besides this one here? *A.*—I did not—that I know of.

***Judge Sweeney:*—We will offer the cross interrogatories.**

Sixth Cross Interrogatory:—If you state that Dr. Mason was superintendent, state whether or not Dr. Mason is now alive. *A.*—He is dead.

Thirteenth Cross Interrogatory:—State whether or not it is a fact that you gave Dr. Brunson a testimonial highly recommending his treatment and the results obtained by the patients from the administration of his medicine. *A.*—I gave Dr. Brunson a recommendation—a letter of recommendation, recommending the treatment.

Fourteenth Cross Interrogatory:—Is it not a fact that shortly after commencing the treatment with Dr. Brunson's formula within a very short period of time the temperature became normal, that within the course of three or four weeks the appetite very materially improved, patients became stronger and took on flesh, that immediately succeeding that and within the period of about four weeks those patients who had hemorrhages ceased to have hemorrhages and that they advanced to a normal condition of health extremely rapidly?

***Mr. Reynolds:*—That is about a triple or quadruple form of question.**

***Judge Sweeney:*—He says here unless they are identified more definitely.**

***Mr. Reynolds:*—Unless they are identified, too. We renew our objection to that.**

***The Court:*—Your urge the objection at this time?**

***Mr. Reynolds:*—Yes.**

***The Court:*—The Court sustains the exception.**

***Judge Sweeney:*—If the Court please, on direct examination the statement was made that the patients were clear of temperature, he had examined four or five and they were clear of temperature.**

***The Court* (reading answer):—In view of the answer, I will overrule the exception.**

A.—Well, might I answer it this way, by saying the patients I examined were about five, which I examined twice, and at the time of examination they were clear of temperature.

Twenty-Fifth Cross Interrogatory:—Is it not a fact that you and Dr. Mason were both, as doctors and professional men, certain of the fact that the Brunson remedy cured tuberculosis? *A.*—I can't answer for Dr. Mason—and for myself, I do not know.

Twenty-Eighth Cross Interrogatory:—Is it not a fact that, after Dr. Brunson ceased individually in administering the formula, the hospital procured a gallon of Dr. Brunson's formula and that you and Dr. Mason administered same to the patients? *A.*—I can't say whether the hospital purchased any of this medicine or not. I do not know whether Dr. Mason administered to these patients or not, but, personally, I did not.

Thirty-Sixth Cross Interrogatory:—What is the customary treatment for tuberculosis in use by physicians in this country? *A.*—Well, most of it is rest, proper diet, proper hygienic conditions, sunshine, fresh air—well, you got "proper food" down there—proper food will consist of all the different vitamins that go into it to build up a person.

Friday, June 2

***The Court:*—The defendant may call the next witness or introduce the next testimony.**

***Mr. Reynolds:*—At this time the defendant wishes to introduce, and read in evidence, a part of the last page of Defendant's Exhibit 7, which is a pamphlet issued by Dr. Brunson, according to his testimony, during the year 1929, entitled "Tuberculosis." On the last page, under the heading "Pleased Patients," this statement: "These are names of a few of Dr. Brunson's patients who have recovered." There are listed: Mr. George Hurst, Box No. 551, Ozona, Texas; Miss Anna Marie Hale, 910 N. Oregon, El Paso, Texas. Mrs. S. G. Aulds, 1717 Dakota, El Paso, Texas.**

***Mr. Reynolds:*—At this time we also wish to read an additional paragraph from what has been called in this trial the Griffin article in the El Paso *Times*, June 19, 1921. Do you have any objection to that paragraph about Mrs. Clark?**

***Mr. Quaid:*—We have already objected to the whole article.**

***Mr. Reynolds:*—Under the headline "Experience of Woman Physician."**

(Reading): "Among the most interesting cases treated by Drs. Brunson and Holderness in El Paso is that of Dr. Margaret Holliday Clark, sister of Attorney Robert L. Holliday. Mrs. Clark is herself a practicing physician and met with remarkable success at Austin, Texas, until taken ill five years ago. She steadily declined, despite the most expert medical treatment that could be obtained, until her life was despaired of. She heard of the Holderness treatment and determined to try it. A nurse was sent to her home at Austin with a supply of the medicine and Dr. Clark began improving at once. Within a week she was able to travel to El Paso and is continuing to take the treatment. Hopes are held out for her recovery, despite her five years' illness and the fact that she weighed only 50 pounds when she began the treatment."

DEPOSITION OF DR. W. A. DAVIS: DIRECT EXAMINATION

Questions by Mr. Harrell:

W. A. Davis, Austin, Texas, has been registrar of vital statistics of the state of Texas since 1928.

Q.—Now, Doctor, tell us briefly what you do in your work as registrar of vital statistics for Texas. *A.*—Well, the birth and death certificates are filed with the local officials in the different rural districts and cities and forwarded by them to the state bureau or the state registrar, at the end of the following month; and it is the duty of the state registrar to proofread those records to see that they are complete and correct and, if not, to secure the completion or correction of the records if possible and then to preserve the record in such a way that it may be available for future use.

Q.—Doctor, assume that a person should die in El Paso, Texas; would you have a record of that death here in your office in Austin? *A.*—I would unless the law were violated and they buried the body without filing a death certificate.

Q.—Doctor, I will ask you to look at your records and tell us, please, if you have a death certificate of a person by the name of George B. Hurst, H-u-r-s-t. *A.*—Yes, sir, we have that record under No. 27114 for the year 1934, filed with the state bureau on July 12, 1934.

Q.—You say you have that record? *A.*—We have.

Q.—Have you a death certificate showing that death in your files? *A.*—This is a death certificate.

Q.—Yes, sir.

***Mr. Reynolds:*—It was marked Defendant's Exhibit 1 as of this date.**

Q.—Now, Doctor, will you please refer to your records and tell us if you have a death certificate covering the death of one Vassie Aulds, A-u-l-d-s? *A.*—I have, under No. 54931, filed with the state bureau on January 12, 1934.

Q.—And that is part of the files and records of your office at the present time, is it? *A.*—Yes, sir.

***Mr. Reynolds:*—That was marked Defendant's Exhibit 2.**

Q.—Now, Doctor, will you refer to your records and tell us if you have a death certificate covering the death of Anna Marie Hale? *A.*—I have, under No. 17380 for 1934, filed May 12, 1934.

***Mr. Reynolds:*—That was marked Defendant's Exhibit 3 and identified.**

Q.—Now, Doctor, will you tell us if you have a record of the death of Margaret Holliday Clark? *A.*—I have, under No. 35118, filed in 1921, but this record does not show when the certificate was forwarded to the state bureau, for the reason that in 1921 the certificates were not stamped as filed. Do I make myself plain? That was not begun—we did not begin to stamp anything on them until 1928, I believe it was, so it is impossible for me to state when that record was received, but this date here (indicating) will show when it was filed in El Paso.

Q.—That is the date shown in the lower left hand corner as being 1-9-22, in other words, January 9, 1922. Is that what you mean? *A.*—That is what I mean; that is the date on which it was filed in the registrar's office in El Paso.

Q.—I see. Well, Doctor, the original of this death certificate is now a part of the files and records of your office as registrar, is that correct? *A.*—It is.

***Mr. Reynolds:*—That was marked Defendant's Exhibit 4. All of these having been substituted, photostatic copies having been substituted for the originals.**

Q.—Now, Doctor, will you refer to your records and tell us if you have a death certificate covering the death of William Terry Bolding? *A.*—I have, under No. 31638 in 1925; but it does not show the date on which that record—that certificate was sent to the state bureau. The certificates were not stamped in that year. It was filed with the registrar in El Paso—in Hamilton County on September 3, 1925, as shown by the date in the lower left hand corner of the certificate.

Q.—Well, the original certificate is part of the files and records of your office at the present time, is that right, Doctor? *A.*—It is.

***Mr. Reynolds:*—That was offered in evidence, with leave to substitute a photostatic copy.**

***Mr. Quaid:*—We offer cross interrogatories to Dr. Davis of Austin, Texas.**

Third Cross Interrogatory:—State the number of deaths from tuberculosis, during the period of time asked for information from you in the direct interrogatories, that were reported by the following named institutions and doctors in El Paso: Dr. J. W. Laws. *A.*—It is an impossibility for me to give any idea whatever—

***Mr. Reynolds:*—Your Honor, these answers are not harmful at all, but it has no relevancy. I suggest where it has not been asked on direct examination we omit it. I object to that question.**

***Judge Sweeney:*—He says he does not know.**

***Mr. Reynolds:*—That is all right, I just wanted to save some time.**

***The Court:*—Yes, it appears to the Court you should eliminate it if it is not material. Very well, you may proceed.**

Tenth Cross Interrogatory:—State, as a physician, how you or any other physician could arrive at a definite, final and correct conclusion with reference to the efficacy of any medicine administered to a human being, outside of analysis showing the medicine to contain elements which would be poisonous or detrimental.

***Judge Sweeney:*—That was objected to, Mr. Harrell.**

***Mr. Reynolds:*—Yes, I will object to that because this man was not asked about this; he is just the Registrar of Vital Statistics.**

***The Court:*—The Court will sustain the exception.**

***Mr. Reynolds:*—Now, at this time, we wish to introduce and read in evidence another testimonial from the El Paso *Times* of Sunday, August 10, 1924, the full page advertisement already admitted as Defendant's Exhibit 14. The title is "Shadows of the 'Dark Ages' Still Cast Their Pall."**

(Reading):

Little Rock, Ark., Aug. 6, 1923.

Dr. Asa Brunson,
Little Rock, Ark.
Dear Doctor:

I do not think it is possible for me to overstate the great value of the Dr. Asa Brunson Treatment for Tuberculosis. My wife, Mrs. Carrie E. Whitney, was in a precarious condition only a year ago, and I had no hope for her recovery or living to see 1923. Dr. Brunson's treatment has made it possible not only for her to live, but to live in her home, where life is worth living to most people.

C. E. Whitney, M.D.

***Mr. Reynolds:*—I also wish to read in evidence a short paragraph from Defendant's Exhibit 13, El Paso *Times* for June 19, 1921, which has been referred to in this case as the Griffin article.**

(Reading): "Mrs. Edgar Blackwell of Pine Bluff, wife of a cotton planter, wires: 'Regarding my experience with the Holderness treatment for tuberculosis I cannot express my confidence in it too highly. I was bedfast after having suffered for thirteen years since my first hemorrhage. Today I am feeling fine, sleep well, eat heartily and am enjoying life. I bless the day Dr. J. S. Holderness entered my life. I am improving daily.'"

***Mr. Reynolds:*—Now, at this time we wish to read the deposition of Mrs. Katherine Ellis Wiles, of Little Rock, taken in Little Rock, Arkansas, on the 8th day of May, 1939.**

DEPOSITION OF MRS. KATHERINE ELLIS WILES: DIRECT EXAMINATION

Questions by Mr. Harrell:

Mrs. Wiles, Little Rock, stated that she was chief clerk of the Bureau of Vital Statistics, State Board of Health, for the State of Arkansas. The name of her superior is Mrs. J. B. Collie, Director. The state registrar is Dr. W. B. Grayson, by virtue of his office as state health officer.

Q.—Tell us, in a general way, what work you do there, Mrs. Wiles. *A.*—The first thing I do in the morning, I open the mail and handle all the mail that comes in the Bureau of Vital Statistics; and the reports are classified by me. I handle all birth and death certificates from the time they enter the office until they are bound in volumes, indexed, transcribed and so forth. These are my principal duties.

Q.—I will ask you— *A.*—The others are various. I couldn't tell you all I do.

Q.——do you have charge of the files, of the records of the bureau of vital statistics, which contain certificates made by physicians of persons who are deceased? *A.*—Well, I wouldn't say I have charge of them. I am in the office and have access to them. I handle them from the time they come into the office and until they are bound in book volumes and put on the shelves. Then I wait on the public and so forth, but I am not officially in charge of the records.

Q.—I will ask you if you have in your files the original death certificate of Mrs. Carrie Egbert Whitney? *A.*—Yes, sir—I remember that distinctly.

Q.—I show you a certified copy of the death certificate of Mrs. Carrie Egbert Whitney, which has been marked Defendant's Exhibit A of this date, and ask you if that is a true and correct copy of the original death certificate as it appears in the files of the Bureau of Vital Statistics of the State of Arkansas (handing the paper to the witness)? *A.*—It is.

Q.—I will ask you if your records contain the original death certificate of one Fay Blackwell? *A.*—They do.

Q.—I show you a certified copy of the death certificate of Fay Blackwell and ask you if that is a true and correct copy of the original death certificate of Fay Blackwell as it appears from the files and records of the Bureau of Vital Statistics of the State Board of Health of Arkansas (handing the paper to the witness)? *A.*—It is. I knew that woman.

Q.—You knew her? *A.*—Uh-huh.

Q.—I will ask you if your files and records show or contain the original death certificate of Sister Rosalie Bradley? *A.*—They do.

Q.—I show you a copy of the original death certificate—certified copy of the original death certificate of Sister Rosalie Bradley, which has been marked "Defendant's Exhibit D" for identification, and ask you if that is a true and correct copy of the original death certificate as it appears in the files and records of the Bureau of Vital Statistics of the State of Arkansas? (handing the paper to the witness). *A.*—It is.

Mr. *Reynolds*:—I now offer in evidence the death certificates in the deposition of Dr. W. A. Davis, which have been identified respectively as Defendant's Exhibits 20 to 24, the same being the death certificates of George B. Hurst, Vassie Aulds, Anna Marie Hale, Margaret Holliday Clark and William Terry Bolding. At this time I will just read the jury short parts of them. Death certificate of George B. Hurst, signed by Ralph H. Homan, El Paso, Texas, filed the 10th day of May, 1939; date of death June 18, 1934, cause of death pulmonary tuberculosis, tuberculous meningitis.

Death certificate of Vassie Aulds, showing date of death December 19, 1933, cause of death, pulmonary tuberculosis, tuberculous peritonitis, contributory causes of importance, tuberculous meningitis.

Death certificate of Anna Marie Hale, date of death April 4, 1934, cause of death acute pyelitis, contributory causes of importance, tuberculosis.

Death certificate of Margaret Holliday Clark, date of death December 29, 1921, cause of death ulcerative phthisis.

Death certificate of William Terry Bolding, date of death August 5th, 1925, cause of death, pulmonary hemorrhage, contributory cause tuberculosis.

Mr. *Reynolds*:—I now offer in evidence death certificates attached in the deposition of Mrs. Katherine Ellis Wiles, from the Department of Vital Statistics of the State of Arkansas.

Death certificate of Mrs. Carrie Egbert Whitney, Fay Blackwell, and Sister Rosalie Bradley. Which have been marked Defendant's Exhibits 25 to 27, inclusive, respectively.

Mr. *Quaid*:—No objection.

Mr. *Reynolds*:—And ask leave to read to the jury short parts.

Mrs. Carrie Egbert Whitney, 521 North Pine Street. Date of death August 24th, 1930; cause of death, tuberculosis chr. fibrous, chr. standing for chronic.

Death certificate of Fay Blackwell, Pine Bluff, 318 West 15th. Date of death August 4, 1928, cause of death fibroid phthisis.

Death certificate of Sister Rosalie Bradley, date of death May 16, 1923, cause of death, pulmonary tuberculosis. Signed Asa Brunson.

Said death certificates were then received in evidence, marked "D-20" to "D-27", inclusive.

TESTIMONY OF DR. HARRY JOHN CORPER:
DIRECT EXAMINATION

By Mr. Reynolds:

Harry John Corper, Denver, stated that he is a physician and research investigator. He received his collegiate degree at the University of Chicago as bachelor of science, Ph.D. at the Ogden Graduate College, that was in chemical pathology and M.D. at Rush Medical College. He is a member of the National Tuberculosis Association, the American Society of Clinical Pathologists, the American Medical Association, the American Society of Bacteriologists and Pathologists, the American Chemical Society, of course, the Colorado Tuberculosis Society, County Medical Society of Denver, and the Colorado State Medical Society. He has been president of the American Society of Clinical Pathologists, secretary-treasurer of the same society; twice chairman of the Pathological Section of the National Tuberculosis Association; at present treasurer of the Colorado Tuberculosis Society and director of the Denver Tuberculosis Society. He was a member of the Illinois Industrial Disease Commission with Dr. Emory R. Hayhurst, now at the Ohio State University and with Alice Hamilton and under the supervision of Dr. Hektoen; also a representative to the national association from the local society. He is on the advisory board of the Colorado State Tuberculosis Section of the Welfare Section and director of research at the National Jewish Hospital, which is a nonsectarian institution, and assistant professor of medicine at the University of Colorado School of Medicine. He taught at the University of Chicago in pathology and in chemistry; in the University of Illinois, at Urbana, Ill., in physiology, then doing service during the World War under Colonel George Bushnell in the school for tuberculosis for the officers in tuberculosis at New Haven, Conn., and affiliated with the University of Colorado School of Medicine, in which he has been assistant professor of medicine since 1925. He is director of research at the National Jewish Hospital. Formerly, at the time of its inception and for a number of years he was director of research and laboratory of the City of Chicago Municipal Sanitarium. During army service he was director of teaching and director of research and laboratory of the government service and was associated with Dr. Milton Winternity, dean of the Harvard School of Medicine.

Q.—Were there any other schools for teaching the subject of tuberculosis at that time pertaining to the army? *A.*—No, sir, that was the original and the only school in which the army conducted its teaching of tuberculosis.

Q.—Do you know whether or not Dr. Asa Brunson was a student and enrolled at that particular school? *A.*—No, sir, he was not, because we have a complete roster of the members and his name was never on the roster.

Q.—Will you tell us if you have held or do hold any positions of an editorial nature? *A.*—Yes, sir. I am associate editor of the *American Review of Tuberculosis*, which I have held for many years, back practically since its inception in 1917, and I am editor of the *American Academy Bulletin of Tuberculosis*, besides some positions I hold with the American Chemical Society, and the *Archives of Pathology*.

Q.—Will you tell us in a general way whether you have done any writing on the subjects of pathology or tuberculosis during your practice? *A.*—Yes, sir, beginning about 1910 I have written an average of four to eight articles a year, and my number of articles are totaling in the hundreds now, that is original scientific, signed articles.

Q.—Have you been the editor or author of any medical books? *A.*—Yes, we have a Volume of Contributions to Tuberculosis, which has thirteen numbers, which was started in 1919, of which I am the editor.

Q.—With what hospitals have you previously been connected which you have not mentioned? *A.*—There is one hospital I am connected with I forgot to mention, and that is my association with Fitzsimons General Hospital, which is right in our vicinity in Denver, and I am associated with this as lecturer to the medical officers of this hospital.

Q.—That is a United States Army Hospital? *A.*—The largest United States Army Tuberculosis Hospital.

Q.—Do you hold a commission in the United States army? *A.*—Not at the present time, but I was major in the Medical Corps in the army in the World War and continued as major in the reserves in the United States army until 1930.

Q.—Dr. Corper, have you received any honors, medals, certificates or awards for contributions to science? *A.*—I think we can include in that membership in Phi Beta Kappa, which is the academic honorary collegiate society, to which I was elected on the basis of scholarship. Besides I am a member of Sigma Xi honorary society, which is awarded on the basis of scholarship. I am a member of Alpha Omega Alpha, which is also based on scholarship. I received the gold medal for scientific work for the American Society of Clinical Pathologists. I received a medal from the American Medical Association for an exhibit and I received honorary scientific mention from the American Medical Association.

Q.—Do you follow a specialty at the present time? *A.*—Yes, sir, my specialty is tuberculosis, particularly stressing the investigative and pathologic sides.

Q.—Will you tell us in a general way what the nature of your work is? *A.*—My time is practically all spent at investigative work. I might also say I have been accepted as a specialist

by the Board of Internal Medicine and by the Board of Clinical Pathology in the fields both of clinical tuberculosis and pathological anatomy.

Q.—Dr. Corper, I am now showing you Defendant's Exhibit No. 20, which is the death certificate introduced in evidence and listing the cause of death. I wonder if you would explain just what that means? *A.*—It says pulmonary tuberculosis, 1922, as a primary cause and tuberculosis meningitis as contributing cause. That means that the individual died of tuberculosis not of any secondary infection, and the individual during the course of this had a tuberculous meningitis, which probably was the final lethal condition.

Q.—And that is the certificate of George E. Hurst to which you are referring? *A.*—Yes, George E. Hurst.

Q.—Exhibit No. 21, certificate of Vassie Aulds, I hand that to you and ask you to explain from what cause she died so we may understand it? *A.*—This patient died of the important cause of pulmonary tuberculosis and tuberculous peritonitis. That means the individual had enough tuberculous disease in the lung as well as in the peritoneum, which is a covering of the intestines in the abdomen.

Q.—I will show you now Defendant's Exhibit No. 22, the death certificate of Anna Marie Hale, and ask you to explain what is listed there and was the means and cause of death. *A.*—The cause of death given here is acute pyelitis, which merely means the condition of the kidneys and does not state the cause of organism. It may be of any type or other. We can have acute pyelitis caused by acute germs and microorganisms as well as tuberculosis. Then there is another contributing cause given, tuberculosis, which is perfectly obvious as a disease caused by the tubercle bacillus.

Q.—Doctor, on the death certificate of Margaret Holliday Clark, Defendant's Exhibit No. 23, will you read and explain to the jury what the cause of death was? *A.*—This is designated as chronic ulcerative phthisis. Now there are a number of names for consumption or pulmonary tuberculosis and phthisis happens to be one of these terms. Phthisis merely means that this individual has had pulmonary tuberculosis or consumption and it was of a chronic ulcerative type. By the ulcerative type we mean this individual had probably had excavations in the lung or ulcer, as we might designate them, and it was chronic, of long duration.

Q.—Incidentally have you ever seen those death certificates before? *A.*—Yes.

Q.—I show you now Defendant's Exhibit No. 25, the death certificate of Mrs. Carrie Egbert Whitney, with the cause of death and abbreviations there. Will you explain to the jury what it stands for? *A.*—This says tuberculosis chr., which stands for chronic. It says fibrous, that means that the individual had tuberculosis, died of it, it was a chronic, slowly progressive type and that it was fibrous, there was a predominance of fibrous or scar tissue in that individual.

Q.—I now refer you to Defendant's Exhibit No. 26, death certificate of Fay Blackwell, and ask you to tell from what she died, according to that certificate. *A.*—This person died of fibroid phthisis. That means the individual had pulmonary tuberculosis of the fibroid or scar tissue type. Scar tissue, of course, being the type we see in all scars, as we in the medical profession know it, being made predominatingly of connective tissues.

Q.—I show you Defendant's Exhibit No. 27, Sister Rosalie Bradley. *A.*—That is pulmonary tuberculosis. I think that is clear.

Q.—Now, Dr. Corper, how long have you been specializing in tuberculosis and especially in research in pathology? *A.*—Over twenty years.

Q.—In connection with your work, do you grow the tubercle bacilli? *A.*—I grow them for my experimental studies in large amounts, and possibly at the present time in my own laboratory I must have pounds and pounds of them.

Q.—Dr. Corper, is it a common opinion of the best doctors today that every one has tubercle bacilli in their system? *A.*—This it not the accepted opinion today. It is an opinion that dates back to some erroneous observations in the early part of the century, about 1900, when Dr. Naegeli by means of tuberculosis tests in big cities found a high percentage of the population positive to the test. He therefore deduced from that, because in a city like Vienna there was a high percentage of positive tests, that everybody had tuberculosis. With reinvestigation of this subject, especially in this country and other countries of this type, we found out this is not true. In a state like Minnesota we do not have more than 10 per cent of the population being infected by the tubercle bacilli during the period of their life.

Q.—Doctor, what creates tuberculosis? *A.*—The causative agent of tuberculosis is the tubercle bacillus, the spetific cause.

Q.—Have you ever seen tuberculosis created? *A.*—Yes, sir, very many times. I have produced it many times in animals. As a matter of fact I produce it on an average of hundreds of thousands of times annually.

Q.—Now, Doctor, without a mixed infection would tubercle bacilli ever do much harm? *A.*—Yes, sir, the tubercle bacillus can kill an individual without any mixed infection. Also tubercle bacilli can produce a range of reactions which resemble acute reactions, which you heard me recite in some of those cases, such as fibrosis.

Q.—Have you ever experimentally seen this happen? *A.*—Yes, sir, we can reproduce it at any time. It is merely a matter of the number of bacilli concentrated in one point; if the bacilli are numerous or highly virulent they produce an acute type of reaction and the reaction there is the influx of acute phagocytic blood cells, acute pus cells.

Q.—Have you ever produced death as a result of the tubercle bacilli, without having accompanying it any mixed infection? *A.*—Yes, sir, it can be done regularly.

Q.—You have never done it on humans, only on animals. *A.*—It has been done on humans. There is reported a case of a young fellow accidentally inoculating himself in Paris intravenously, where mixed infection played no part and he died from that inoculation.

Q.—Doctor, in your opinion is it or is it not a fact that a doctor or chemist cannot arrive at a positive conclusion without trying out a medicine? *A.*—Will you repeat that.

Q.—Doctor, in your opinion is it or is it not a fact that a doctor or chemist cannot arrive at a positive conclusion without trying out a medicine? *A.*—I do not believe that any one can arrive at a positive conclusion regarding any therapeutic agent without thorough and careful trial.

Q.—Does that mean that it has to be tried on a patient when administering a medicine that is advanced? *A.*—I personally do not contribute to experimentation on patients with anything that may be a trial and which may result in any type of injury.

Q.—Now, Doctor, if you know the nature of the ingredients of a particular medicine, their physical or chemical composition, the properties, is it necessary to try them out on an individual before determining whether or not they have any efficacy? *A.*—I think it would be better to put it this way. It would be wiser to try these medicines out on experimental animals to try their efficacy before in any way applying them to a human being. I would like to elaborate on that, and say wherever these materials have been tried on a human being we have a number of classic examples in which human beings have been definitely injured by such trial.

Q.—Do you know whether or not the use of volatile oils in tuberculosis has ever been so tried? *A.*—Not in a satisfactory manner to my knowledge. Only from the standpoint of the injury that might be produced. These volatile oils might have a definite injurious effect.

Q.—By that you mean it has been tried by some and the results are unfavorable? *A.*—The results are unfavorable in that they are injurious.

Q.—Now, Doctor, after a body has been embalmed, is it impossible to see tubercle bacilli at an autopsy through a microscope? *A.*—Not at all if we stain them properly. They can be seen even when they are dead, when you cook them, when you embalm the body and when you treat them with many chemicals, that is, chemical reagents. They are resistant to many chemical reagents, they are a very hardy organism.

Q.—Now, Doctor, will you describe a tubercle for us. *A.*—By a tubercle, of course, we mean a classic picture which does not aptly describe what we see in the tuberculosis. The classic tubercle — the word tubercle means a little nodule. Now, we can have tuberculosis without having these classic little nodules and we have them in various forms and various types. The classic tubercle does not usually include the acute reactions which occur in what we call exudative reaction. Therefore the classic tubercle in itself, which is a reaction in the body to tubercle bacilli, is not the only index of tuberculosis.

Q.—Doctor, in connection with pulmonary tuberculosis is the mucus — is it mucus that we usually call pus? *A.*—No, sir, the mucus is not the pus. Even when we look at the sputum we characterize the sputums in at least three ways. We characterize it mucoid because there is a lot of mucus and mucous secretion in the cells, and we characterize it purulent because there is a lot of pus, and we characterize it nummular or caseous because there is a lot of so-called cheesy material from chronic types of tuberculosis, where the tissues have died and left this cheesy material.

Q.—Doctor, has it ever been definitely established that a pus germ has caused every symptom that is manifested in the disease of tuberculosis? *A.*—No, sir, I investigated this myself in 1918 and on the basis of my own work I can say it is not. The pus germ, as we understand, plays very little part in the tuberculosis. At that time there was a conception that this germ by getting into the blood would cause a fever and symptoms of tuberculosis. Today we know that is not true. The pus germ does not play any part in the symptoms of tuberculosis.

Q.—How long did it take you to make that study and come to that conclusion? *A.*—It took about four years.

Q.—Have you ever seen under a microscope a specimen of sputum from a tuberculous patient in which specimen pus germs did not predominate? *A.*—Yes, sir, we frequently have specimens which are almost pure cultures of tubercle bacilli except for some of the cells that may be there. They are easily seen, they are little red rods, we stain them red.

Q.—Now, Dr. Corper, is it true that, in pulmonary tuberculosis, disease may be accompanied by cough and increased temperature or, in other words, fever, increased pulse rate and lowered blood pressure? Is that true? *A.*—Yes.

Q.—When a person has those four symptoms do they necessarily have tuberculosis? *A.*—No, sir, there are many other diseases that can imitate those symptoms and give them to us without the presence of tuberculosis.

Q.—In regard to these many diseases may they be treated by the same methods as are recommended as a treatment for tuberculosis? *A.*—No, sir, entirely different.

Q.—Doctor, assume a case of suspected tuberculosis of the larynx. Assume that a doctor accumulates some of the mucus in the larynx and puts it under a microscope. In your opinion is that all that is necessary to diagnose tuberculosis of the larynx. *A.*—No, sir.

Q.—What else should be done, must be done? *A.*—A direct examination at least should be done, and, of course, then this should be verified by a complete examination of the individual, because usually the larynx or vocal cord tuberculosis is secondary to pulmonary and there are so many conditions that might imitate tuberculosis of the larynx that we have to be very careful and rule them out.

Q.—Now, Dr. Corper, in connection with silicosis, will you tell the jury first what silicosis is? *A.*—Silicosis is a condition usually in the lungs, resulting from the irritation produced by a silicious or silicate type of inhaled dust.

Q.—Now, in silicosis is it necessary to have mixed infection before there are rales? *A.*—No, sir, we can have rales without mixed infection. A rale is merely an index of moisture being present there and whenever there is irritation we can have moisture which will give the rales.

Q.—Will you explain to the Court and jury, Doctor, just the meaning of fibrosis? *A.*—In the simplest way fibrosis merely means the influx of cells that we call fibroblasts, which then accumulate to form fibrous or scar tissue. I think you have all seen scar tissue and you know what it is like. I have a scar on my thumb and I think most of you have.

Q.—Is that the same definition as for fibrin? *A.*—No, fibrin is the clotting constitutent in the blood and has nothing whatever to do with fibrosis. Fibrin is not a cellular material, it is a humoral material.

Q.—Is it more difficult to diagnose an apparently cured pulmonary tuberculosis than it is a lack of cure? *A.*—Yes, sir, I should say so.

Q.—Is it possible in your opinion to discharge as apparently cured a patient who had suffered with pulmonary tuberculosis without making any sputum tests or any x-ray plates of his lungs? *A.*—It is impossible.

Q.—In the treatment of tuberculosis, Doctor, is it good practice to allow a patient to be up and out of bed while he is running a temperature or fever? *A.*—No, sir, it is absolutely urgent that the individual be in bed with a fever.

Q.—As a matter of fact is there any disease or dysfunction in which that is a good practice known to medicine? *A.*—It is a bad practice to be up with fever.

Q.—Is there any difference in fever and above normal temperature? *A.*—Not that we recognize. It means the same thing.

Q.—Now, Dr. Corper, I want you to assume a hypothetical treatment for pulmonary tuberculosis, in which there is an inhalation of an oily vapor that is produced by the use of an atomizer or nebulizer to which is attached an oxygen tank, that the pressure gage on the oxygen tank is set at about 35 to 40 pounds, that the bulb of the atomizer contains oily substances composed essentially of 95 per cent mineral oil and approximately 5 per cent volatile terpene-like substance of steam distillable like oil of eucalyptus and menthol, sometimes called mint camphor, and terpene-like substances resembling oil of pine and thymol, that the tip of the atomizer is inserted in the patient's mouth and he is required to inhale ten times, that this treatment is administered twice daily, have you an opinion based on reasonable medical and scientific certainty as to whether or not such a treatment could or might be efficacious in the treatment of tuberculosis, pulmonary tuberculosis? *A.*—I think we can say—

Q.—Doctor, just answer if you have an opinion. *A.*—Yes.

Q.—What is your opinion? *A.*—My opinion is that with the best of our knowledge today we do not know from all scientific information available that such treatment is beneficial. It has another factor in it, it may be harmful.

Q.—Do you have any scientific knowledge today on which to base the opinion it might be harmful? *A.*—Yes, sir.

Q.—Will you explain that? *A.*—I would like to elaborate on this: In the first place that the pressure on any gage when the vaporizer or the atomizer is held in the mouth is no index of the pressure at which that comes into the mouth. In the second place, we are fortunately protected by nature in the fact that materials that get into the mouth are not easily transmitted into the lower parts of the lung. Now, even with our breathing, materials may enter the larger tubes, the bronchi and trachea of the lung but they do not go very far for the simple reason they go only so far as the tidal air carries them. We do not exchange the air in the lung with every breath. In addition to that we have a protective mechanism of the trachea and bronchi in having little cilia on which these materials lodge in the larger tubes and which are intended to carry them up. That is what we see in the morning in a smoky city in the form of soot; it is a protective mechanism. Now, the most vital part of the lung is a little air sac or alveolus and the only way material can get into that is by means of what we call aspiration. If we have sufficient liquid there or accumulation of material and it once gets into the air sac usually very mild substances like liquid petrolatum or ordinary petroleum oils may produce a decided irritation and throw these alveoli out of function.

Q.—Doctor, what is the effect of oxygen on a tubercle bacillus? *A.*—The tubercle bacillus is what we call from a bacteriologic standpoint an aerobe. That means the tubercle bacillus likes oxygen. There are other organisms that prefer to be away from oxygen. We call them anaerobes. Now, the tubercle bacillus also has a tremendous latitude for obtaining this oxygen and it will take oxygen away from other cells when it is there even in small amounts. Now the fact that the tubercle bacillus is an aerobe is demonstrated when you grow liquid cultures of this organism. You will always find the growth on the surface of the liquid, not in the bottom of the liquid.

Q.—Doctor, in regard to this hypothetical treatment to which we have been referring, have you an opinion as to whether or not such a treatment is dangerous to a patient having pulmonary tuberculosis? *A.*—Yes, sir, it can be dangerous. It can produce a bronchopneumonia, very much resembling tuberculosis, because it is the waxy and fatty materials in the tubercle bacilli that produce the tubercle so called, and these oils have a close resemblance in that respect to the tubercle bacillus.

Q.—Now, Doctor, if we should change the oily substance in the bulb of the atomizer that was referred to in the hypothetical question and substitute instead an oil consisting essentially of from 95 to 96 per cent light mineral oil, 3 to 3½ per cent, more or less, oil of eucalyptus, and 1 to 1½ per cent menthol, no other substances, would your answer be any different regarding the efficacy of it as a treatment? *A.*—Not at all. That group of terpenes are all toxic and as a therapeutic method these materials do not enter the disease focus of tuberculosis and cannot have any effect on the tubercle bacillus.

Q.—Now, Doctor, if we should change the composition of that oily substance and say that the treatment involved the inhalation of eucalyptol, menthol and turpentine, would your answer as regarding its efficacy and danger be different in any respect? *A.*—No, turpentine was a little more caustic and would be a little more detrimental. Still they are all detrimental.

Q.—All these groups of oils, Doctor, that we have mentioned in the terpenes would it make any difference so far as the efficacy of such a treatment for pulmonary tuberculosis is concerned in what proportion or percentage they might be juggled? *A.*—I do not think it would make any difference.

Q.—Your conclusion is that they are all essentially the same? *A.*—Essentially the same.

Q.—Doctor, there has been a lot of talk, now, about terpenes here, will you explain to the Court and jury what is meant by that term? *A.*—Terpene is a chemical radical, and this consists

of a certain ring group with a chain group, which has probably been explained to you before, and in that group we have these compounds which are of the aromatic series, as we call them. They are aromatic oils, and they are of a certain constitution and they all have certain common properties; among those properties is the factor that they are irritants and deaden certain nerve endings.

Q.—Now, Doctor, in connection with the use of oils and their effect on the lungs, have you done any special work in that field? *A.*—Yes, sir, I have written on that, on such inert oil as liquid petrolatum, that is supposedly inert.

Q.—That is the same as mineral oil? *A.*—Liquid petrolatum, olive oil, and the famous chaulmoogra oil. I didn't publish my work on the terpenes because I never found any results that were encouraging at all; the detrimental features outweighed the beneficial.

Q.—Doctor, in connection with your work on oils, how much time have you devoted to that? *A.*—I published a number of articles in 1922, and I have been interested in it for years; I can't state the exact number of years.

Q.—Now, Doctor, if—well, first, have the various constituents of these oils we have described to you here been tried out scientifically? *A.*—Yes, sir.

Q.—You know that to be a fact? *A.*—Yes, sir.

Q.—Have you tried some of them out yourself? *A.*—Yes, sir.

Q.—And if given one of these particular oily solutions, is it necessary for you to try it on a patient now in order to determine whether it is efficacious or not? *A.*—No, sir.

Q.—In connection with your work on oils, Doctor, will you describe to the Court and jury just what some of the various types of experiments are in their nature? *A.*—When we do an experiment in tuberculosis, the first problem that we approach is a problem of whether this material can be placed where it is supposed to affect the germ of the disease. Now, when we apply these oils as they are applied here, by inhalation, even if we forced them into the lung, they could not possibly come to the disease focus. They could not get near the tubercle bacillus because the tubercle bacillus is in a walled off area and it is thoroughly protected against the oil; it is in a walled off area of body cells, and these body cells are much more susceptible in every respect to any of these drugs, and you must remember we have no specific drug today for tuberculosis, and the reason for it is these cells are much more sensitive, and the lung cells are much more sensitive, than the tubercle bacillus itself. Then the tubercle bacillus is an extremely hardy organism; we can place him under the most exacting condition and he still survives. He survives in places where the ordinary animal of any type cannot possibly survive. You can put him into liquid air, which is extremely cold; it would burn a human being, freeze him, rather, we call it burn; you can put him in liquid helium, it is so cold a chemist puts it as close to absolute zero, and the tubercle bacillus survives; we can dry him by means of the best drying agents the chemist knows of, as a matter of fact, that is one of the ways we preserve him; we keep him in the laboratory in a sealed tube after he has been dried, and put him in the icebox and he keeps alive and better than under other conditions. We can do a great many other things to him; that shows he is hardy, an extremely hardy organism.

Q.—Have you conducted all these experiments yourself? *A.*—Yes, sir.

Q.—Generally, in experimenting with oils, Doctor, you have explained what you found out, but will you tell us just a few of the experiments that were carried on to come to your conclusions in your work? *A.*—You see tuberculosis is a primary disease, in which the bacillus is protected; we cannot approach that through the lung because we run into the difficulties I explained.

Q.—How did you find it out? *A.*—By actual experiment and analysis.

Q.—Of what? *A.*—For instance, by analyzing the materials used, analyze them in the tubercles, and try to find if they even enter; they do not enter, any more than oil mixes with water, and you must remember that the cell itself is primarily not an oily organism but water organism. If we fail, the best approach, from the standpoint of protection, would be by intravenous injection, and it is perfectly obvious these oils cannot be injected into the blood.

Q.—Have you tried those on human beings? *A.*—No, sir.

Q.—How did you try that? *A.*—Experimental animals. We can examine animals microscopically, examine by chemical examination and by gross examination, so we can see exactly where the materials go to.

Q.—Have you tried with all these oily substances similar to what we have been talking about? *A.*—Yes, sir.

Q.—Have you studied the effects of oils on the lungs at postmortems? *A.*—Yes, sir. In human beings?

Q.—Yes. *A.*—Yes, sir.

Q.—Approximately how many, would you say? *A.*—Well, in my period, I have seen, well, I should say over twenty cases in which oils were involved.

Q.—Now, Doctor, is there any similarity between the action of oils on the human lung, discovered in postmortems, and the action of the tubercle bacilli themselves? *A.*—Yes, sir, there is very striking similarity, because these oils, when they enter these little trees of the lungs, little air spaces, produce a bronchopneumonia, and the bronchopneumonia resembles very much the bronchopneumonia we get by aspirating tubercle bacilli, as it naturally occurs in man when his disease spreads.

Q.—Have you prepared specimens for illustrating that? *A.*—Yes, sir.

Q.—I show you now a specimen (gross specimen of lung in a jar) that has a pencil mark "F-3" on it and ask you to state if you have seen it before? *A.*—Yes, sir.

Q.—Explain to the Court and jury what this is. *A.*—This is a case of tuberculous involvement of the lung; it is shown here by the lighter areas; we call it the bronchiogenic spread type; it is not the fibrous type; it is the acute type more or less, and in medical terminology we call it the acinous type of tuberculous pneumonia.

Q.—That is part of the human lung, is it? (Referring to specimen.) *A.*—Yes, sir.

Q.—I will ask you to look at another specimen marked "CA-203" on it and tell us if you have seen it before. *A.*—Yes, sir, this is a specimen from a man who aspirated an oily material.

Q.—What do you mean by aspirated? *A.*—Sucked into the trachea from his mouth; it went into the finer divisions of the lungs and produced bronchopneumonia; this bronchopneumonia is of the same type we have in this case; that is tuberculous. That is "F-3." Here we have a lipoid or oily bronchopneumonia in this specimen.

Q.—You say you have seen those specimens before. Where? *A.*—I put them up and brought them along.

Q.—You prepared them? *A.*—Yes, sir.

Q.—Now, as regards these two specimens, this on my right is which? *A.*—That is lipoid pneumonia and that is tuberculous bronchopneumonia (indicating); lipoid bronchopneumonia and tuberculous bronchopneumonia.

Q.—Doctor, will you point out what on those two exhibits or specimens, that is distinguishable to the human eye, indicates a pathologic similarity between the two conditions? *A.*—Well, if you look at these specimens you see the thing that is similar here is the injury to the tissues, which is shown by the lighter areas and which is designated by the doctor as bronchopneumonia because this material has entered here the finer tubular divisions down to the alveoli, little air sacs, and gives you this picture, which very much resembles tuberculosis because both of them were produced the same way, by aspiration of irritating material into the human lung tissue.

Q.—I notice that the general background of color in these two specimens is a little different; has that any pathologic significance? *A.*—No significance at all; because sometimes a lung will be prepared in a little darker fashion. The average doctor would have a great deal of difficulty in differentiating these two conditions.

Q.—As a matter of fact, between two different individuals, the appearance of the lung is different, when actually seen? *A.*—In different parts of the lung.

Mr. Reynolds:—**I would like to pass these to the jury.**

The Court:—**I think they can be explained, possibly by the witness by holding them up before the jury, more satisfactorily.**

Mr. Reynolds:—**I think that has been done.**

The Court:—**Than to pass them around among the jurors, and they can draw their own conclusions, that would be more satisfactory to the Court.**

Mr. Reynolds:—**If the Court please, may I have Dr. Corper step closer to the jury and explain this to them.**

The Court:—**That will be satisfactory to the Court.**

Q.—Will you explain to the jury, Doctor, the pathologic similarity between these two specimens and give the account of the cause? *A.*—This specimen we call lipoid or oily pneumonia. These are the larger blood vessels and larger bronchi. These dark areas are normal air-containing lung tissue. The areas here that are paler are the little so-called bronchopneumonic areas, these little patches that are lighter. You notice they are in the form of a pulmonary tree, as we call it, in the form of the lung itself and air passages. Frequently we use the term air cells, that is wrong, not air cells, they are air sacs, little holes, which are elastic, in which the irritating material can

float; they are innumerable, some little and some large. You see the striking similarity between the oily pneumonia and the tuberculous here, which is caused by the tubercle bacillus. It is perfectly obvious things that go in the same place, if they irritate at all, must resemble each other. It is absolutely impossible to tell these conditions apart unless you examine for the materials in them—in this case the tubercle bacilli.

Q.—What is this type? *A.*—This was the aspiration of milk.

Q.—What is that? *A.*—It produces exactly the same effect whether the oily fat of the milk or whether it is the fact of the tubercle bacillus.

Q.—As far as the symptoms are concerned, is there a similarity or not? *A.*—Yes. This individual may show no symptomatology or pathology.

Q.—As far as the two are concerned, could you tell the difference by the four things we listed, temperature, pulse, blood— *A.*—No.

Q.—Now, Doctor, are you acquainted with Dr. Morris Fishbein, the defendant in this suit? *A.*—Yes, sir.

Q.—Do you know his general reputation as a medical man? *A.*—Yes, sir.

Q.—Will you tell us what it is, please? *A.*—Well, I have known Dr. Fishbein for a great many years; I know him to be absolutely honest, sincere; I have personally given him the nickname of "Defender of mankind and medicine." My reason for that is his grounding in pathology—he knows about pathology; his grounding in scientific and investigative medicine is sufficient to make his statements absolutely reliable. I would like to say one other thing and that is the fact that, in all my years of acquaintance with Dr. Fishbein, I have never known him to even harm a mosquito unless it became necessary to do so to protect—

***Mr. Quaid*:—I object to that argument.**

***The Court*:—Sustain the exception.**

Q.—Doctor, do you know whether or not Dr. Fishbein enjoys that reputation generally in the field of medicine and surgery? *A.*—Yes, sir, I think, among the reputable medical profession and among the educators Dr. Fishbein is a very able educator; among educators he enjoys that reputation.

Q.—Doctor, how long have you known Dr. Fishbein? *A.*—For thirty years.

Q.—Did you ever study with him? *A.*—Yes, sir.

Q.—Will you tell us when and where and under what circumstances? *A.*—I studied with him in school, I was a classmate of his; I studied with him in the McCormick Institute for Infectious Diseases when he was doing pathology, and I have known him fairly well since.

Q.—Under whom? *A.*—Ludvig Hektoen, E. R. LeCount, Dr. Frank Billings and a number of others.

Q.—Doctor, what is a pathologist? *A.*—A pathologist is a man who has been especially educated and who understands the changes produced by disease in the tissues of man and animal.

Q.—And that is your specialty? *A.*—Yes, sir, I took my Ph.D.

Q.—Doctor, have you ever been certified to any board as a specialist? *A.*—Yes, sir, I have been certified as a specialist in internal medicine by the Board of Internal Medicine and by the Board of Clinical Pathology.

Q.—Doctor, do you know whether or not Dr. Fishbein is a pathologist by education? *A.*—Yes, sir.

CROSS EXAMINATION

Questions by Judge Sweeney:

Q.—You are from Denver? *A.*—Yes, sir.

Q.—When did you come to El Paso, Doctor? *A.*—I came to El Paso on Saturday night a week ago.

Q.—You have been here ever since? *A.*—Yes, sir.

Q.—At whose expense are you here, Doctor? *A.*—I am at my own expense.

Q.—You asked no remuneration and are expecting none? *A.*—I have asked none.

Q.—Do you expect any? *A.*—No, sir.

Q.—Now, Doctor, you have been staying at the Hilton Hotel, have you? *A.*—Yes, sir.

Q.—Are you paying your own expenses there? *A.*—Yes, sir.

Q.—You have met the other doctors, visiting doctors, from various places? *A.*—Yes, sir.

Q.—You discussed this case together, have you not? *A.*—Yes, sir.

Q.—You have been discussing it during this week, haven't you? *A.*—No, sir, not with the doctors. The last time I discussed the case with the doctors was on Sunday.

Q.—You all had a conference at that time, did you not? *A.*—Yes, sir.

Q.—Then you have eaten together, breakfast and lunch and dinner? *A.*—Yes, sir.

Q.—And you have incidentally discussed the case? *A.*—These men—I want to explain this, they are all personal friends of mine, of long standing, and some of them are pupils of mine.

Q.—Being doctors, you are all interested in this case? *A.*—Well, I don't know, except to present the facts.

Q.—I say, you are interested in the case? *A.*—That is what we came here for.

Q.—You naturally discuss those questions you are interested in? *A.*—No, we did not discuss this in any way outside of the conference I referred to on Sunday.

Q.—It was never mentioned among any of you since Sunday? *A.*—Incidentally, what we see mentioned in the newspapers might have been mentioned; we didn't make it our business to discuss this case.

Q.—So I understand you to say that since last Sunday you haven't discussed with anybody the questions of evidence in this case? *A.*—I didn't say that. I said I discussed probably incidentally, not specifically, what I might have read in the newspaper; I read the newspaper.

Q.—With whom did you discuss it? *A.*—I discussed it with Dr. Hruby—I don't say discussed, we just incidentally talked about it, I would rather use that term. With Dr. Hruby, who is a pupil of mine, Dr. Moorman, who is a friend of very long standing, with Dr. Watson, with Dr. Turner, and I think that is all.

Q.—That is all you incidentally talked to with reference to the case. You talked to Dr. Fishbein? *A.*—Not specifically, no.

Q.—You haven't incidentally talked about this case at all? *A.*—Not to Dr. Fishbein, no sir.

Q.—Doctor, you have written quite a number of articles on various matters with reference to medicine, on which you have been studying? *A.*—Not on matters, on scientific investigations.

Q.—On scientific investigations that you have made? *A.*—Yes, sir.

Q.—Those have been published? *A.*—Yes, sir.

Q.—And what papers have they been published in? *A.*—They have been published in both foreign and American journals, they have been published in the *American Review of Tuberculosis*, the *American Journal of Pathology*, the *Archives of Internal Medicine*, the *Journal of Laboratory and Clinical Medicine*, the *Journal of Biological Chemistry*, the *Bulletin of the American Academy of Tuberculosis Physicians*, the *Journal of Infectious Diseases*, and a number of others.

Q.—Practically all of those medical journals you have mentioned are connected more or less with the A. M. A., are they not? *A.*—Not a bit of it, they are entirely independent.

Q.—None of these publications are connected with or under the direction of Dr. Fishbein? *A.*—I didn't say that. Some of them are, yes, sir.

Q.—Which ones? *A.*—THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the *Archives of Pathology*, and that is all.

Q.—Those two are connected with Dr. Fishbein? *A.*—Yes, sir.

Q.—And the A. M. A.? *A.*—Yes, sir.

Q.—Now, Doctor, you have been giving your close attention to the treatment of tuberculosis and its study since 1920? *A.*—No—

Q.—No, for twenty years? *A.*—I said since 1911.

Q.—Since 1911? *A.*—Yes, sir.

Q.—And you have been a tubercular specialist how long? *A.*—Since 1913. Now, I don't know what you mean by a tubercular specialist.

Q.—Didn't you answer to the direct interrogatories that you were a tubercular specialist? *A.*—Yes, sir.

Q.—That is what I mean. *A.*—What do you understand by a tubercular specialist?

Q.—I am not answering questions, I am asking them. *A.*—Excuse me.

Q.—You are a tubercular specialist? *A.*—Yes, sir.

Q.—And you have been for how long? *A.*—Well, in the broadest sense of the term, for at least twenty-eight years.

Q.—During the twenty-eight years, Doctor, how many patients have you had, tubercular patients? *A.*—You mean private or institutional?

Q.—Either one or the other? *A.*—Hundreds.

Q.—For illustration, how many? *A.*—Well, I should say that I had under my care some 650 at one time in the City of Chicago Municipal Tuberculosis Sanitarium; in the army we ran as high as 700 at one time; at the National Jewish Hospital we ran 250.

Q.—Now, the National Jewish Hospital you designated that as nonsectarian, what do you mean? *A.*—By that we mean that we are nonsectarian by the fact that we take all kinds of patients, regardless of creed or race.

Q.—Now, in your private practice, Doctor, during the last twenty-eight years, how many tubercular patients have you had? *A.*—None for pay.

Q.—It has just been in the nature of public work? *A.*—My services are all rendered free to private patients.

Q.—How many have you had? *A.*—I couldn't say they were very numerous, probably twenty.

Q.—In twenty-eight years? *A.*—Yes, sir.

Q.—And in twenty-eight years, you have had under your direction and control and administration, in all institutions, how many, the approximate total number? *A.*—I can't answer that because it runs way up in the thousands, and I have kept no accurate figures.

Q.—Among the twenty that you have had as private patients, how many did you effect a cure in? *A.*—I can't answer that.

Q.—How many died, Doctor? *A.*—I—

***Mr. Reynolds:*—I believe that is immaterial, Your Honor, because he has not gone into the conditions of the patients, the surrounding circumstances at all, he hasn't asked even of what they died, I object to it.**

***The Court:*—The Court sustains the exception.**

Q.—Did any of the twenty patients you administered to during the last twenty-eight years die of tuberculosis? *A.*—Not to my knowledge.

Q.—They did not? *A.*—No, sir.

Q.—Now, in the Chicago hospital and these other institutions you had hundreds of patients under your direct administration. Do you know the percentage of those that were cured? *A.*—I can't give you the exact figure on that, because they are not cured according to the best medical terminology; they never cure a patient.

Q.—In the final analysis in your opinion there is no cure for tuberculosis? *A.*—I can't answer that because you do not define your term cured.

Q.—What does a cure mean, Doctor, in your language? *A.*—In my language there are two types of cures. A bacteriological cure is never attained. A tubercle bacillus can remain alive in the body for twenty-five years. A clinical cure can be achieved. That is an apparent cure, and the reason for that is because in all of the physical and pathological findings, and all these things we are concerned with, toxicity begins to disappear and subside, and the tubercle bacilli disappear from the sputum. We consider these cases apparently arrested; we do not call them cured.

Q.—You spoke a while ago of science and medical science. Is medicine a science? *A.*—Yes, sir.

Q.—Or is it an inexact, an incomplete science? *A.*—It would still be a science whether it was inexact—

***The Court:*—Read the question.**
(The question was read.)

A.—May I explain that?

***The Court:*—Yes. You were starting to explain it before, were you not?**

***The Witness:*—Yes, sir.**

***The Court:*—Very well.**

A.—Science, you see, goes by stages and sometimes by leaps and bounds. If medicine were a complete solved science, which is what I think you mean, we would not have any disease that we would have to combat. We must do our work in such a way that we find our faults and admit them and try to progress on that basis. In fact you call medicine a science, but medical science depends on all of the other sciences for progress.

Q.—Doctor, that is then what happened to Pasteur. He worked out a theory but he was ahead of his time, was he not? *A.*—No, I think you are misinformed on Pasteur. Pasteur established facts which have benefited the world. He was not so much concerned with theories.

Q.—And he was criticized by practically all of the medical profession in the world? *A.*—That is not so.

Q.—That is not so, the medical profession supported him from the beginning? *A.*—As always with mankind, when there is a new progress in medicine there are groups of medical men who do not understand, who are skeptical and want to be shown. That is perfectly all right.

Q.—And Bodington in 1845, when he put forth the theory of rest and fresh air, what happened to him, Doctor? *A.*—I do not recollect anything, except that he did not get any patients.

Q.—He was criticized and put out of business by the medical profession? *A.*—No, sir, not by the profession at all. You are misinformed on that.

Q.—They criticized him, did they not? *A.*—I don't think so, not to the best of my knowledge.

Q.—He was severely criticized, was he not? *A.*—I don't believe so.

Q.—And the medical profession did not continue or follow his ideas? *A.*—Yes, sir.

Q.—Until 1870, when Dr. Brehmer of Vienna again took the theory up, is that not a fact? *A.*—I think you have some of those dates wrong, but Brehmer did take it up and it took Brehmer a long time in Germany, the Kaiser's country, to get permission to establish an institution; but you haven't the thing fully. Brehmer went to Bodington's idea after he, as a student, had gone to the postmortem table and seen some of these procedures, tuberculous conditions improve with rest and graduated exercise.

Q.—You were a fellow student, you say, with Dr. Fishbein? *A.*—Yes, sir.

Q.—An associate of his and have been ever since? *A.*—No, sir. I don't know what you mean by associate.

Q.—A friend? *A.*—Yes, sir, a friend.

Q.—Did you know Dr. Simmons? *A.*—I have met Dr. Simmons on occasions, yes, sir.

Q.—Were you and Fishbein protégés of Simmons and friends of his? *A.*—I think Dr. Fishbein was an employee of Dr. Simmons. I don't know whether you call an employee a friend. I can't answer that. Maybe Dr. Fishbein can answer that.

Q.—He was associated with him for a number of years? *A.*—In a business way, yes, sir.

Q.—As Assistant Editor of THE A. M. A. JOURNAL, was he not? *A.*—I think that is true.

Q.—And he succeeded Simmons about thirteen years after becoming his assistant? *A.*—I wouldn't say the exact years, but he did succeed Dr. Simmons.

Q.—You did not know Dr. Simmons yourself? *A.*—Yes, sir, I did. I had met Dr. Simmons, but I had no business dealings with him, or not a great deal of contact.

Q.—Just an acquaintance, that was all? *A.*—Yes, sir.

Q.—Dr. Simmons occupied the position with the A. M. A. that Dr. Fishbein now occupies, did he not?

***Mr. Reynolds:*—Just a moment, if Your Honor please. I do not think Dr. Simmons is on trial in this case in any way, and unless counsel has something bearing on the issues I don't think we should spend the time on it. It is wholly immaterial.**

***The Court:*—In view of the objection urged by counsel for defendant the Court will hear from counsel for plaintiff as to the materiality of the inquiry with reference to Dr. Simmons.**

***Mr. Reynolds:*—If we may do so outside of the hearing of the jury. I don't know what it is.**

***The Court:*—Come right up here.**
(Out of hearing of the jury).

***Judge Sweeney:*—They have attacked Dr. Brunson on the question of advertising, and I want to show Dr. Simmons was an advertiser, and he was the head of this institution, A. M. A., and Dr. Fishbein was working under him.**

***Mr. Reynolds:*—In the first place, counsel, that is not a fact, there is no advertising of Dr. Simmons at any time after he became—**

***The Court:*—I will sustain the exception and will give you a bill, in the interest of time.**

Q.—Whose lung is this in this exhibit, Doctor? *A.*—This is a lung from a human being that died.

Q.—Who is he—who was he? *A.*—The name of the individual? I can get that for you if you would like to have it. I don't carry it along with me. It is a patient. They are both patients that died, one of them at Fitzsimons General Hospital and one at the University of Colorado School of Medicine.

Q.—Did you attend them at their death? *A.*—No, sir, I did not.

Q.—Did you administer to them while they were sick? *A.*—No, sir.

Q.—Neither one? *A.*—No, sir.

Q.—You got that from the staff of the hospital? *A.*—I obtained that from those hospitals with which I am personally affiliated.

Q.—And took their statement with reference to the disease from which they died, and the history of the case? *A.*—Yes, sir.

Q.—You know nothing of that of your own knowledge? *A.*—Well, no, I wouldn't say I was personally present when they were obtained.

Q.—That is all.

ON RE-DIRECT EXAMINATION

Questions by Mr. Reynolds:

Q.—Doctor, Judge Sweeney just said here you know nothing of the condition of these two people of your own knowledge. As a pathologist have you any knowledge of these conditions? *A.*—There is not any question about that. I am glad you have asked that question. I studied those materials. I examined them by microscopic examination, and I examined them myself. As a matter of fact I have a section of one of them here with me.

Q.—Doctor, this conference called at the Hilton Hotel with other doctors and attorneys for Dr. Fishbein present on Sunday afternoon—will you tell the Court and jury just what the nature of that conference was? *A.*—That was a conference in which we were told about the case. We discussed the various phases. Mr. Reynolds spoke of the case, spoke to us on the case, and we were advised what the case was about.

Q.—At any time, in any way, was any statement made as to what you were to testify to? *A.*—No, sir, I was not told what I was to testify to.

Q.—Were you asked questions about the disease of tuberculosis, in response to which each of you gave answers? *A.*—Yes, sir.

Q.—Was there any disagreement, Doctor, among all of the doctors present at that time, with regard to the cause, progression, theories and treatment of tuberculosis, as far as the administration of oil was concerned? *A.*—No, sir.

Mr. Quaid:—**We object to that.**

The Court:—**That probably calls for a conclusion. The Court sustains the exception.**

Q.—Dr. Corper, in regard to a complete science, is there any complete science or completely solved science known to mankind? *A.*—No, there is no such thing as a completed science in any branch.

Q.—Mathematics, physics or chemistry? *A.*—No, sir. They would cease to be sciences if they were completed.

Q.—Now, Doctor, the question of new remedies and new treatments being advanced in medical science, is there anything new about the theories that we have been discussing and were contained in the treatment contained in the hypothetical question on your direct testimony, that is new and novel in the history of medicine? I mean the inhalation of oils, is that new and novel in medicine? *A.*—No.

Q.—Do you know whether or not similar treatments have been tried elsewhere? *A.*—Well, the treatment with these aromatic oils, of course, was attempted many years ago; it is an old treatment as far as that is concerned and it has been discarded.

Q.—It has been definitely established they are of no value? *A.*—They are worthless.

Q.—That is all.

ON RE-CROSS EXAMINATION

Questions by Judge Sweeney:

Q.—You never gave any such treatment or saw any such treatment given, did you, Doctor? *A.*—Yes, sir.

Q.—Where and when? *A.*—Well, unofficially our patients every now and then will get hold of some of these aromatic oils and treat themselves, without the doctor's prescription, and I have seen a number of those cases, that is that spray their throats.

Q.—You have never done it yourself? *A.*—Prescribe it?

Q.—Yes. *A.*—No, I would never prescribe it.

Witness excused.

TESTIMONY OF DR. ORVILLE E. EGBERT ON DIRECT EXAMINATION

Questions by Mr. Reynolds:

Orville E. Egbert, El Paso, stated that he has lived in El Paso since 1919. He is a physician, licensed to practice medicine in 1912. He graduated in medicine with the M.D. degree from Baylor University in 1912 and since 1921 has specialized in diseases of the chest. He is a member of the county and state medical associations and the American Medical Association; a fellow of the American College of Physicians, certified by the National Board of Internal Medicine. He is president-elect of the Southwestern Medical Association and vice president of the El Paso County Society. He has been a director of St. Joseph's Sanatorium in El Paso since 1927. He did postgraduate work in tuberculosis at the University of Pennsylvania in 1925.

Q.—Doctor, in connection with your study of the treatment of tuberculosis have you had called to your attention any suggested treatments by means of inhalation? *A.*—Inhalation treatment for tuberculosis has been brought up from time to time for a great many years and it has always been disappointing in its effects. There have been instances when it was tried out, but it has always been disappointing.

Q.—Do you know whether there have been inhalation treatments involving the use of mineral oil or volatile oils? *A.*—Yes, sir.

Q.—And do you know whether they have proved to be failures or efficacious treatments? *A.*—The use of oil on mucous membrane is always an irritant, particularly the type of mucous membrane lining the bronchial tree, which is the lung; oils are very irritating. Mineral oil is itself irritating, and volatile oils I should say are even more irritating than mineral oil alone.

Q.—What are volatile oils, Doctor? *A.*—Those oils that give off volatile or gaseous matter, such as oil of eucalyptus; and there are other such oils.

Q.—Now, Doctor, in connection with the treatment of pulmonary tuberculosis, assume a treatment wherein an atomizer is used, to which is attached an oxygen tank on which the pressure gage is set from 35 to 40 pounds, that the bulb of the atomizer contains an oily solution composed of approximately or substantially 95 per cent mineral oil, the other 5 per cent oil of eucalyptus and menthol, and that by reason of the atomizer mechanism the oil is vaporized, and the tip of the atomizer is placed in the patient's mouth, he inhales ten times, the treatment is administered twice daily; Doctor, have you an opinion based on reasonable medical and scientific certainty as to whether or not such a treatment might or could be efficacious in the treatment of pulmonary tuberculosis, have you an opinion? *A.*—I have.

Q.—What is your opinion, Doctor? *A.*—My opinion is that there is no conceivable way in which it could prove efficacious in the treatment of tuberculosis.

Q.—Have you an opinion as to whether it might prove dangerous, might or could prove dangerous? *A.*—It is my opinion that it would be dangerous.

Q.—Why, doctor? *A.*—Oil of any sort, oil such as you have described, carrying in solution such agencies as you mentioned in the question, are definitely an irritant, destructive to the mucous membrane of the bronchial tree. In addition to its being an irritant, it would provoke and aggravate cough, and aggravation of cough is very detrimental to the tuberculous patient. The blocking of the small bronchial tubes, even those that go down to microscopic size almost, with even the tiny globules of oil that would be either thrown down there—I do not care what kind of machine, in whatsoever form you got it, if it was a 10 cent atomizer from Walgreen's or this elaborate machine you describe, it makes no difference whatsoever, these oils get down in the bronchial tree and bronchus, block the bronchial tubes and are very liable to produce an area of bronchial pneumonia, one of the most serious diseases of the lung and perhaps the direct cause of death, whether a person is suffering from tuberculosis or any other pulmonary disease.

Q.—This bronchial pneumonia, Doctor, does it have some symptoms which are similar to those of pulmonary tuberculosis? *A.*—Yes, bronchial pneumonia covers a multitude of sins; or, to put it in another way, it really describes certain conditions and symptoms that may develop in the lung and that may be from various causes. Technically we can have areas of bronchial pneumonia that are tuberculous, tuberculous bronchial pneumonia; it may be due to other germs such as a pneumococcus, the germ of pneumonia or influenza, the germ of "flu." There are many causes of bronchial pneumonia, but it is the thing that we physicians fear perhaps more than any other disease.

Q.—Now, Doctor, in regard to these dangers that you have described in the use of oils, if you should substitute any combination of those oils for the oils I actually described would it make any difference in your answers? *A.*—In my opinion none whatsoever.

Q.—And if you considered the inhalation of menthol, eucalyptol and turpentine is there any essential difference between those two? *A.*—Other than in turpentine you have got one more irritant, that is all.

Q.—Dr. Egbert, do you know Dr. Asa Brunson? *A.*—I have met him on one occasion.

Q.—You know of him? *A.*—I know of him; I know him at sight.

Q.—Do you know his general reputation as a physician and surgeon in the community of El Paso as it existed prior to January 1938? *A.*—I do.

Q.—Will you tell the Court and jury what that was? *A.*—That reputation is not good.

Q.—Doctor, was there any difference, if you know, between his reputation prior to January 1938 in the community in which he resides and his reputation in that same community at the present time? *A.*—In answering before January 1938 I go back further than that to form my opinion. There is no difference in my opinion in his reputation since or before that date. However, I have not heard of him in the last ten years. I did not know he was even in El Paso until this case came up.

ON CROSS EXAMINATION

Questions by Judge Sweeney:

Q.—Doctor, on what do you base this opinion that you have formed with reference to his reputation? *A.*—The fact that he is alleged to have treated tuberculosis with a secret remedy, which places it in the category of an unethical procedure, and that, unfortunately, gives him a bad reputation with his fellows and perhaps with the community at large.

Q.—You don't know whether it gives him a bad reputation in the community at large? *A.*—Yes, sir, it does.

Q.—The bad reputation you speak of is of the medical profession talking about him and knocking him, isn't that a fact? *A.*—No. We are talking about ethics.

Q.—It is because the medical profession has been talking about him you think he has a bad reputation in this community? *A.*—I hope, sir, I am talking about the same kind of ethics you are. I will qualify myself if you want me to.

Q.—Go ahead, qualify them anyway you want to, Doctor. *A.*—I am not talking about a set of ethics that has been set up by some group for their selfish interests. I am talking about ethics as a procedure in human conscience that differentiates between right and wrong. If that happens to apply to the practice of medicine that is all right. Is it right or is it wrong to practice medicine under certain given standards? And that is what I mean by this being an unethical practice of medicine.

Q.—Because he has a secret formula? *A.*—Yes, sir, that is one thing.

Q.—That is what you base it on? *A.*—That is one thing.

Q.—Give another thing? *A.*—Well, let's deal with that—I am willing to let it rest on that.

Q.—Is he dishonest? *A.*—He is either ignorant or dishonest.

Q.—In what way, how is he dishonest? *A.*—If he is not ignorant he is dishonest, first because he knows there is no such thing as a secret remedy; he knows that if there was a remedy of value that he could not keep it from the world; and regardless of what his motive might be, it could be 100 per cent selfish and he still would not want to keep it from the world. There is money and honor and everything else for the man who has a true contribution to the suffering people of the world today.

Q.—If he has a secret remedy then, according to your idea, you doctors ought to get that remedy? *A.*—No, we are not even interested, no, sir.

Q.—You are not even interested? *A.*—No, sir.

Q.—You have fought him for many years? *A.*—No, sir.

Q.—The Medical Association? *A.*—No, sir, absolutely not.

Q.—The Medical Association has talked about him repeatedly, again and again? *A.*—I never heard his name mentioned in a medical association meeting in my life.

Q.—Now, Doctor, you are a tubercular specialist. Is this your signature (indicating)? *A.*—May I see it all.

Q.—I asked you if that was your signature? *A.*—May I see what the whole thing is?

Q.—I will ask you about the whole thing later on. *A.*—I want to see—

***The Court:*—He will be permitted to see what it is, and see whether his signature is attached.**

A.—Yes, sir.

Q.—Now, Doctor, you know S. E. Jones? *A.*—I am sorry, my memory is not refreshed on that. That is my signature.

Q.—May I refresh your memory? Do you know a man by the name of S. E. Jones that works for the Nichols Copper Company, in the barrel department? *A.*—I am sorry, I don't believe I do, Judge.

Q.—That had an affliction of the chest, and you, acting as physician for the Nichols Copper Company, examined him for tuberculosis?

***Mr. Reynolds:*—Just a moment. There is an objection here. Dr. Egbert is not on trial in this case, and I do not see the materiality.**

***The Court:*—You may come before the Court (out of hearing of the jury).**

***Judge Sweeney:*—He is speaking about attacks and about his knowledge, and likewise as to time lost, and he has a man that he examined and was paid for examining by the Copper Company, and he certified that man as not having lung trouble and made a recommendation and application to the city health department for that man to be permitted to run a lunch counter, and Dr. Tappan, who was then city health officer, had Turner's Laboratory make an x-ray, and he stated that this man has chronic type of fibroid tuberculosis, and that he would not permit him to have a certificate.**

***The Court:*—I don't see the materiality of that.**

***Mr. Reynolds:*—Besides you have not sworn in any witnesses to prove that.**

***The Court:*—No. The Court sustains the exception.**

***Mr. Quaid:*—We would like to have a bill on that.**

***The Court:*—Yes, sir, I will give you a very full bill.**

Q.—Doctor, have you met Dr. Watson, Dr. Hruby and Dr. Moorman, and these other doctors that have been here during the past week? *A.*—Yes, sir.

Q.—Did you attend a conference with those doctors that was had in Mr. Reynolds' room Sunday afternoon, last Sunday afternoon? *A.*—No, sir.

Q.—Did you attend a conference since? *A.*—No, sir.

Q.—Have you discussed this case with any of those doctors, what your testimony would be in this case? *A.*—Discussed Dr. Brunson and his treatment.

Q.—Did you discuss the testimony that they were to give? *A.*—No, sir.

Q.—Did you discuss anything that you were going to say in reference to the evidence in this case? *A.*—No, sir.

Q.—Did you discuss inhalation method with those doctors? *A.*—Yes, sir.

Q.—With whom did you discuss it, Doctor? *A.*—I imagine I discussed it with all the men you mentioned, Judge.

Q.—At what time, when did you discuss it? *A.*—Some time during the week, I wouldn't attempt to say what hour or day.

Q.—Can you recall whom you discussed it with during the week, Doctor? *A.*—I believe I have discussed it with all of the doctors you mentioned, Dr. Hruby and Dr. Moorman.

Q.—Any others, Doctor? *A.*—I think not.

Witness excused.

Questions by Mr. Harrell:

Friday, June 2

TESTIMONY OF DR. MORRIS FISHBEIN ON DIRECT EXAMINATION

Morris Fishbein, Chicago, stated that he is a regularly licensed physician and surgeon in Illinois. He attended the University of Chicago, graduating in 1910, and Rush Medical College, graduating in 1912, receiving a degree of Bachelor of Science from the University of Chicago and the degree of M.D. from Rush Medical College.

Q.—What has been your work since graduating from the University-Rush Medical College? *A.*—A large part of the work during the first years was devoted particularly to pathology, since I received the Fellowship of Pathology at the time of graduation. In connection with that work, I participated in about 800 to 900 postmortem examinations which were made in the Cook County Morgue and in various other institutions in and around the city of Chicago. I also did some work in the Central Free Medical Dispensary of Rush Medical College. I was resident physician in the Durand Hospital of the McCormick Institute for infectious diseases. I also carried on research in connection with my work in pathology and in connection with

infectious diseases. I published six scientific contributions during the years 1912 and 1913. I became Assistant Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and since that time I have kept abreast of medical science by visiting institutions of medicine, hospitals, research institutions, clinics and laboratories throughout the world.

Q.—Doctor, have you contributed articles to medical journals and periodicals? *A.*—I have contributed a great number of articles to medical journals and periodicals.

Q.—Have you written any articles on the subject of tuberculosis? *A.*—I have written much in the field of public education regarding tuberculosis, and I have also lectured on the subject of tuberculosis on many occasions.

Q.—You say you have attended clinics. Will you name some of those clinics and what subjects were studied at those clinics, in a general way? *A.*—Because of the nature of my work, I have endeavored to see the newest advances that are made in every field of medicine year after year, and this I have done particularly since 1924. I have, for instance, within the past two years spent several days at Saranac Lake, seeing the very latest work done there in the field of tuberculosis. I have also, within the past years, spent time at Colorado Springs and at Denver, visiting various institutions for tuberculosis. I have also been acquainted with and seen work in connection with the Municipal Dispensary and Municipal Sanitarium in the city of Chicago. As far as concerns general medicine, I have visited at least once each year the various large hospitals in the city of New York; within recent months I have seen the latest work done on sulfanilamide and sulfapyridine and chemical derivatives of various types. I visited the Mellon Institute in Pittsburgh and have seen research on chemical derivatives of various types. I have also seen institutions for tuberculosis in Switzerland, Sweden and Holland, and have seen such sanatoriums in England.

Q.—Do you contribute articles to newspapers; if so, tell us the nature of the articles? *A.*—I write a daily column of advice to the public regarding health, which now appears in approximately 250 newspapers each day.

Q.—Do you contribute articles to magazines other than THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and *Hygeia? A.*—Yes.

Q.—Will you name those magazines and tell us what connection you have with them? *A.*—For the past five years I have written original articles on the subject of health and on the subject of general science for the *Saturday Evening Post,* for *Good Housekeeping* and for the *Reader's Digest.* I am a consulting editor of the *Scientific American,* consulting editor of *Look* magazine, I am consulted occasionally by *Time* and *Life* and *Fortune;* in fact, I have written for most of the magazines of largest circulation in the United States.

Q.—Are you a consulting editor of the *Reader's Digest?* A.—I am consulted frequently by the *Reader's Digest* but I do not have the official title of consulting editor.

Q.—Now, Doctor, what is your official position with the American Medical Association? *A.*—I am editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, editor of *Hygeia* magazine, editor of the *Quarterly Cumulative Index Medicus;* I am also managing editor of special magazines in the field of medicine, for example the *Archives of Ophthalmology,* the *Archives of Otolaryngology,* the *Archives of Internal Medicine,* the *Archives of Neurology and Psychiatry,* the *American Journal of Diseases of Children* and the *Archives of Pathology.*

Q.—Doctor, what is the American Medical Association? *A.*—The American Medical Association is an organization, a voluntary organization, of physicians of the United States. On May 1, 1939, it had in its membership 113,113 out of approximately 170,000 physicians who are licensed to practice in the United States. Of these, approximately 15,000 are over 65 years of age and approximately 145,000 are actually in practice. The American Medical Association now includes a voluntary organization of 113,000 plus physicians out of approximately 145,000 in the practice of medicine.

Q.—Doctor, will you name some of the bureaus or councils of the American Medical Association that are concerned with the issues in this case? *A.*—The American Medical Association has many bureaus and councils, which have their headquarters in the headquarters office in Chicago. In the headquarters office there are employed approximately 600 people, of whom approximately forty are physicians or chemists. In these bureaus those particularly concerned with this case would include, first of all, the Council on Pharmacy and Chemistry of the American Medical Association, of which I am a member. Do you wish me to describe them as I go along?

Q.—Will you describe the functions of the Council on Pharmacy and Chemistry? *A.*—The Council on Pharmacy and Chemistry is a body established by the American Medical Association to investigate all discoveries in the field of the use of drugs or chemicals or biologic preparations, such as vaccines, serums or vitamins, in the treatment of disease. The Council on Pharmacy and Chemistry includes seventeen members, fifteen being absent from the headquarters office and all holding chairs as professors in the leading universities of the United States. They cover practically every field of medicine, pharmacy, chemistry and to some extent also biology. The Council on Pharmacy and Chemistry is supported wholly by the American Medical Association. It does not receive financial contributions from any other source. Any one who wishes to establish a new discovery in the field of medicine may submit that discovery voluntarily to the Council on Pharmacy and Chemistry. In submitting the discovery he must state its composition, he must also state the claims that are to be made for the product and submit with that the evidence on which the claims are based. When this is received, the composition of the product, as submitted by the discoverer, manufacturer or promoter, is verified in the laboratories of the American Medical Association, in which five chemists are employed, most of them full time. In addition to that, the claims made for the product, together with the evidence, are submitted not only to the members of the Council on Pharmacy and Chemistry but, if persons are known to have special knowledge, also to such persons; these persons then examine the evidence and determine whether or not the claims made for the product are justifiable by the nature of its composition and the evidence submitted in its behalf. If the product is then found to be acceptable, it is included in a list of acceptable products called New and Nonofficial Remedies.

Q.—Doctor, will you name the other bureaus or councils that would be concerned with the issues in this case? *A.*—The next would be the Bureau of Investigation.

Q.—What is the Bureau of Investigation? *A.*—The Bureau of Investigation was established in 1905, primarily to protect the public but also to protect the medical profession to some extent against various nostrums, panaceas and unestablished remedies offered for the healing of diseases. In the Bureau we now have a cross index system in which there are 300,000 cards cross indexing all of the various remedies, nostrums and peculiar treatments that have been offered to the American people since the time when the Bureau was established in 1905. The investigations made through this Bureau are regularly published in THE JOURNAL and *Hygeia* and various other places; moreover, this Bureau answers approximately 15,000 questions each year that are sent to the Bureau by the public. No charge whatever is made for this service to the people, not even a two cent stamp.

Q.—Now, Doctor, tell us about the chemical laboratory of the American Medical Association. *A.*—The chemical laboratory of the American Medical Association was established in connection with the Council on Pharmacy and Chemistry in order that we might be able to verify the composition claimed for various remedies submitted to the Council; moreover, when certain individuals endeavor to promote remedies to the American people and are unwilling to submit the composition of the remedy, it then becomes possible through this laboratory, which is equipped with the very latest and finest equipment that can be bought, for us to make for ourselves an analysis of the product in accordance with modern scientific chemistry and thus to determine for ourselves the composition and whether or not the claims made are warranted by the composition.

Q.—Doctor, does the chemical laboratory—strike that. Do you know approximately how many specimens or medicines the chemical laboratory of the American Medical Association analyzes, we will say, within one year's time? *A.*—Well, certainly never less than 100. In many instances many hundreds of analyses are carried out in this laboratory. I may say that in accord with the most modern advanced scientific chemistry, and with the development of what is known as microchemistry, it now becomes possible very readily to perform an analysis of a remedy frequently within a matter of a few days; there aren't more than ten such laboratories fully equipped in the United States; one of those we possess.

Q.—Is there a microchemist in the employ of the chemical laboratory of the American Medical Association? *A.*—Yes, sir.

Q.—Tell us his name, please? *A.*—Dr. Schoeffel.

Q.—Is that the same Dr. E. W. Schoeffel whose deposition has been read here in this case? *A.*—Yes, sir.

Q.—Now, Doctor, what is THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION? *A.*—THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is a periodical devoted to all the interests of medical science. It is published once each week, it has approximately 100,000 circulation weekly, the largest circulation of any medical periodical in the world, in fact, almost a larger circulation than all other weekly medical journals in the world combined. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION regularly publishes original contributions from all physicians who have announced new discoveries in the field of medicine and who voluntarily submit to THE JOURNAL not only a complete description of the discovery but also laboratory evidence on which the discovery was based, the animal experimental work, the clinical cases and all of the other evidence that the physician may have assembled in relationship to his discovery. No payment is made whatever for such contributions, the physician who has made a great discovery feeling that the prestige and honor which will come to him as a result of the publication are quite sufficient reward for the announcement of such discovery and for the submission of his scientific contribution. We publish, moreover, in THE JOURNAL complete reports of each of the scientific investigative functions maintained by the Association, including the Council on Pharmacy and Chemistry, the Council on Foods, the Council on Physical Therapy, the Bureau of Investigation, the Council on Medical Education and Hospitals, the Bureau of Health Education and other departments.

Q.—What is *Hygeia*, the Health Magazine, of which you are also editor? *A.*—*Hygeia* was established by the Association some fifteen years ago in order to meet a demand from the educators of the United States for a sound periodical in the field of health education. The magazine has thus been accepted, as indicated by the fact, for example, that the state of Tennessee now places a copy of this periodical in each school of that state, also the fact that this periodical has reached approximately 150,000 circulation, also indicated by the fact that it is quite certainly the most quoted of all magazines in its field.

Q.—Doctor, for what purpose or purposes was the American Medical Association formed? *A.*—The American Medical Association was established in 1847 to advance the standards of medical education in the United States, to raise the standards of medical practice and to protect the public in relationship to such establishment and raising of standards.

Q.—Doctor, assume that a young man graduates from the Medical Department of the University of Texas or of Baylor University, how would he become a member of the American Medical Association? *A.*—He must first obtain a license to practice in the state in which he lives; he would then apply for membership to the county medical society which exist in the various communities of the United States; there are now something over 2,000 such county medical societies. When he applied to the county medical society, his name would then be regularly posted before the society so that the members of the society might become aware of the fact that he sought admission. If, after a reasonable period of time, no one had made any objection to the type of work in which the man was engaging or his conduct with reference to standards of medical practice, he might be admitted as a member of the county medical society; coincidentally he would become a member of the state medical society. The state medical society would then forward his name as a regular member of the county and state medical societies to the headquarters of the American Medical Association. As part of the work of the American Medical Association, we maintain a complete file of all the physicians now living and practicing in the United States, listing them so far as concerns the high school from which they graduated, the town in which they were born, date of their birth, listing also their high school education, college education, medical education, internship served, if any, residency served, if any, the various communities in which they have practiced from time to time; moreover, there would also be made available any newspaper clippings or other information which might have accumulated from time to time concerning such individual whose name had come into the public print; in addition, there would be assembled, through the Bureau of Investigation, any other information which might develop relative to this physician, and all cross indexed and assembled on cards and envelops, so for each physician in the United States there is a card and envelop containing all available data concerning him. I might say this is the only place in the United States where such information is available, and, as a result, the United States government, during the World War, stationed its officers in the headquarters office so they might have such information available for building up the medical service of the army, navy, Public Health Service and civilian population.

Q.—Are those names and that information published in any book, do you publish a directory? *A.*—A directory is published regularly, listing all the information I have mentioned relative to a physician. I might say in this connection also that should it be found that at any time a member of the Association or one that has applied for membership has a record assembled in such a manner, which it is felt should be called to the attention of the county and state medical society who enrolled that individual, that information is sent to the county or state medical society in relation to the affiliation of the individual with the American Medical Association.

Q.—Doctor, do you, as editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and *Hygeia*, frequently receive inquiries regarding physicians and regarding medicines? *A.*—There is never a week that passes in which I do not receive a considerable number of such inquiries.

Q.—Does the Bureau of Investigation also receive inquiries? *A.*—Approximately 15,000 inquiries a year are sent to the Bureau of Investigation from the public.

Q.—Are those inquiries answered? *A.*—All inquiries are answered and, as I said, without cost to the person inquiring.

Q.—Those inquiries are received from whom, Doctor? *A.*—Inquiries which come to me directly are in many instances received directly from the public. I answer personally all inquiries which come to me as a result of my own writings either in the newspapers or in the various magazines I mentioned. All inquiries coming from the public without specific request would be assigned to the Bureau of Health Education, which is a general bureau under the directorship of Dr. W. W. Bauer, who answers general questions in that field of medicine from the public. Those having to do with specific unestablished remedies would be sent to the Bureau of Investigation, those having to do with established remedies or food or cosmetics or physical therapies would go to the Division of Foods, Drugs and Physical Therapy.

Q.—Do you receive inquiries from other than individuals? *A.*—Inquiries are received from practically every large newspaper agency in the United States, such as the Associated Press, United Press, International News Service and Transradio Press Service. Inquiries are regularly received from all leading organizations and associations not only in the field of medicine but general fields, for instance, frequently questions are asked by organizations of laboring men as to the competence of certain physicians, frequently requests are received from sanatoriums and hospitals, from all sorts of institutions for cure of the sick. I have answered in the past four months inquiries from four governors of various states who have sought information on medical problems, medical devices and medical treatments, sometimes regarding individual physicians or hospitals. There is no group or type of individual that has not, at one time or another, sent questions either directly to me or to some of the bureaus or departments of the Association.

Q.—Doctor, do you recall having received this message from DeWitt Wallace, editor of *Reader's Digest*, and referring to the telegram placed in evidence in this case? *A.*—I did receive such a telegram.

Q.—After receiving that telegram, Doctor, tell the Court and jury just what you did regarding it. *A.*—My first step was to send a memorandum to the Bureau of Investigation of the American Medical Association, asking it to send me all material available in the Bureau of Investigation relative to Dr. Brunson or to his method of treatment; my second step was to send a memorandum to the laboratory of the Association and to the Council on Pharmacy and Chemistry, asking them to send me any information there available relative to an analysis of the product said to be used by Dr. Brunson or of similar products; my third step was to address an inquiry to the library of the American Medical Association and to the *Quarterly Cumulative Index Medicus*, asking them to send me for my desk all periodical articles of importance published within the last twenty years dealing with the subject of inhalation treatment of tuberculosis. The *Quarterly Cumulative Index Medicus* is an index which is kept up day by day in the headquarters office of the American Medical Association, listing every original article published in more than 1,400 medical journals which are received from every nation in the world, including, for example, the Italian periodicals, Scandinavian periodicals, Spanish periodicals, all of the publications from South America, Mexico and Cuba and every section of the world, and day by day the original articles in these periodicals are regularly indexed, so that at any time we have available the latest information concerning any product or method of treatment.

Q.—What did you receive from the Bureau of Investigation?

***Mr. Quaid:*—I want to object to that out of the presence of the jury. (Going to Court's desk.) This case is a suit against Dr. Fishbein, and the complaint is that Dr. Fishbein sent the telegram. Now, our courts have held that a tale bearer has no higher standing than a tale maker. It would be no defense what the American Medical Association or some bureau said.**

***The Court:*—There are many features included in here, the question of malice, actual and exemplary damages—the Court overrules the exception.**

A.—I received from the Bureau of Investigation what was apparently the original folder there accumulated relative to Dr. Asa Brunson and also relative to the so-called Brunson-Holderness method of treatment of tuberculosis. In the folder were assembled a considerable number of advertisements published from time to time by Dr. Brunson and by the Brunson-Holderness Clinic, as I believe it was called. In addition, there were in the folder perhaps twenty or thirty letters which had come from time to time from various individual citizens asking an opinion of the American Medical Association as to whether or not they should submit themselves to the Brunson treatment or to the Brunson-Holderness treatment. In addition, there was available some correspondence indicating that in 1921 a Chicago chemical laboratory had made an analysis of a specimen of the so-called Brunson-Holderness remedy, and the outline of that analysis was also available in the folder. In connection with the folder, the Bureau of Investigation also submitted a list of other unapproved methods of inhalation treatment of tuberculosis, including, I believe, the Baird inhalant method and the Glass inhalant method, which were first offered to the public in 1910, including also another method of inhalation treatment of tuberculosis, of approximately the same type, offered to the American people in 1918 and including, in addition to that, several modifications or inhalant methods of tuberculosis in the period from '21 and '22 or '23; apparently the only active inhalant method of treatment of tuberculosis being offered to the public to any extent since '23 or '24 was that being offered by Dr. Brunson.

Q.—Was the Dr. Hruby report in the file? *A.*—There was also in the file, as I have said, a collection of all newspaper clippings dealing with Dr. Brunson, so that I received not only the copy of the original article in the *Herald and Examiner,* to which the name of Dr. Hruby was attached, but also the article by Griffin, which I believe was published in the El Paso *Times.*

Q.—Now, after you had received this material from the Bureau of Investigation and from the chemical laboratory, what did you do? *A.*—I then investigated all the articles which had been sent to me in various periodicals from the library of the American Medical Association to determine whether or not any scientific contributions dealing with this or similar methods of treatment had been published from time to time.

Q.—Doctor, had you known Dr. Hruby before this occurrence? *A.*—I had known Dr. Hruby casually from meeting him once or twice at a meeting devoted to tuberculosis. I was not particularly an intimate or friend of Dr. Hruby. However, I was fully familiar with his scientific reputation.

Q.—What was that reputation? *A.*—His reputation is, of course, that of a leading expert in the field of tuberculosis, primarily because of the vast experience that he has had.

Q.—Of course you knew DeWitt Wallace at that time? *A.*—I had, I believe, up to that time never met DeWitt Wallace personally.

Q.—Had you had any dealings with him of any sort? *A.*—I had frequently had dealings with the *Reader's Digest* almost from the time of its founding and with its increasing circulation. In fact, as soon as the public caught on and the circulation reached about 2,800,000 copies, I was requested to write contributions for the *Reader's Digest* and I had, previous to January 1938, written several original contributions and in addition had had several of my writings in other magazines and in *Hygeia* requoted and abstracted in the *Reader's Digest.*

Q.—What position did DeWitt Wallace have with the *Reader's Digest? A.*—Mr. DeWitt Wallace is editor of the *Reader's Digest* and, I believe, together with Mrs. Wallace, owns most of the *Reader's Digest.*

Q.—At the time that you sent the telegram to DeWitt Wallace did you know Dr. Asa Brunson? *A.*—No, I never saw Dr. Asa Brunson until I saw him in court here Monday morning.

Q.—Was there anything unusual, Doctor, about answering this single inquiry of DeWitt Wallace's? *A.*—I receive many such inquiries every week. I have received two such inquiries while here in El Paso, over long distance telephone and by telegram.

Q.—Had you visited El Paso before this time, Doctor? *A.*—I believe the last time I visited El Paso was in April of last year, and I had never visited El Paso previously, although I had gone through on occasion, once in a sand storm.

Q.—Now, Doctor, you tell the Court and jury your feelings regarding Dr. Brunson. *A.*—I would say I have no particular feelings of any kind regarding Dr. Brunson. For more than twenty years I have regularly investigated and examined innumerable methods of treatment, innumerable methods of diagnosis and other information in the field of medicine. I endeavor always to be strictly objective in relationship to such examinations, strictly scientific, even in the case of persons whom I know or whom I have met. Obviously, in regard to a person whom I have never seen or whom I have never known or whom I have never personally investigated up to that time, I would have no personal feeling whatever.

Q.—In arriving at the wording of the telegram, Doctor, how did you choose the diction or language used? Tell the Court and jury about that, please? *A.*—It was my desire to give to Mr. DeWitt Wallace, taking it for granted that he wished honest, scientific information on which to base his opinion, to give him the most accurate scientific advice I could give him. I therefore quoted to him portions of the article of Dr. Hruby, already referred to, and that material was included in the quote in the telegram. However, as a result of my personal knowledge of tuberculosis and of its method of treatment in various leading institutions throughout the world, and as a result of my examination of the scientific literature regarding inhalation methods of treatment which was available to me, and as a result also of my personal knowledge of pathology, and as a result of several recent articles which had been published dealing particularly with the effect of oily substance in the lungs, I added to the quote the final statement, which was to the effect that similar methods elsewhere have also been failures.

CROSS EXAMINATION

By Mr. Sweeney:

Q.—Doctor, you have been connected with the American Medical Association how long? *A.*—Since September in 1913, late August, early September.

Q.—When did you graduate? *A.*—I graduated early in June 1912.

Q.—And you have been constantly since that time connected with the American Medical Association? *A.*—In one capacity or another, yes, sir.

Q.—Who did you first serve under and in what capacity? *A.*—I served for three years, including the last year and a half of my medical school and the next year and a half as assistant to Dr. Ludvig Hektoen, who was a professor of pathology in the University of Chicago and who is now chairman of the National Advisory Committee on Cancer.

Q.—Who else? *A.*—I also did postmortem examinations with Dr. E. R. LeCount, professor of pathology in Rush Medical School. I also did chemical analyses and prepared evidence in legal cases with Dr. Walter S. Haines, professor of toxicology in Rush Medical College. I was also associated in the hospital with Dr. George H. Weaver and Dr. George H. Dick, the latter the inventor of the scarlet fever antitoxin and the discoverer of the cause of scarlet fever. In my work at the Central Free Dispensary of Rush Medical College I was associated with the entire medical staff of Rush Medical College. In fact, I am at the present time clinical assistant professor of medicine in Rush Medical College and lecturer in the history of medicine in the University of Illinois.

Q.—All these things you testified to were in connection with the American Medical Association? *A.*—None of them.

Q.—I asked you who you served under in the American Medical Association. *A.*—I understood you meant what my associates had been. You mean in the American Medical Association?

Q.—Yes. *A.*—I became assistant to Dr. George H. Simmons.

Q.—At what time? *A.*—Late in August 1913.

Q.—How long did you remain assistant to Dr. Simmons? *A.*—Until 1924.

Q.—1924? *A.*—Yes.

Q.—Then how long did Dr. Simmons stay with the American Medical Association? *A.*—He retired in 1924, when I became editor of THE JOURNAL.

Q.—And during the time that Dr. Simmons was in the position that you now occupy the American Medical Association was still seeking to carry out the fundamentals of the organization? *A.*—Oh, that was since 1847.

Q.—I say he was then seeking to do that? *A.*—Yes.

Q.—What was the occasion of his disassociation with the American Medical Association and why did he retire? *A.*—He was over 70 years old. He was moving up toward 75. He thought, I think, he had done enough.

Q.—What was his general reputation? *A.*—Well, by—

Mr. Harrell:—**I am objecting to that, the general reputation of Dr. Simmons is not an issue in this case.**

The Court:—**The Court sustains the exception.**

Q.—Did you ever see this picture? (Handing book to witness.) *A.*—Yes, sir, I have seen that picture.

Q.—Was Doctor—

Mr. Harrell:—**Your Honor, we have the same question up that was up this morning with reference to Dr. Simmons.**

Judge Sweeney:—**I asked him if he had ever seen this picture.**

The Court:—**What is the purpose?**

Mr. Quaid:—**One of the questions is whether Dr. Brunson advertises, and there is an implication before the jury that the A. M. A. don't believe in advertising. We want to show the most active man connected with the A. M. A. was an advertiser.**

Mr. Harrell:—**He is not connected with the A. M. A. He is dead now. Whatever advertisements you have there is long before. That stuff pops up in every case we have.**

Judge Sweeney:—**It is pretty good stuff.**

Mr. Harrell:—**That book was printed recently. There are several of those books, but that happens to be the one Dr. Brinkley used at his trial, or attempted to use.**

Judge Sweeney:—**That is not the Brinkley case. This is the Brunson case.**

Mr. Harrell:—**I say that book was.**

Judge Sweeney:—**I was going to ask him whether he himself was working for Dr. Simmons, under Dr. Simmons' direction, and if Dr. Simmons' picture there is the method of publicity he had at that time, unethical.**

Mr. Harrell:—**If you name the date I wouldn't have any objection, that he was working under Dr. Simmons on such and such a date, the date of that picture. It is just a back door way of trying to get it in, Judge.**

The Court:—**The Court sustains the exception.**

Mr. Quaid:—**Note our exception.**

The Court:—**You may interrogate him with reference to ethics if you want to.**

Q.—Now, Doctor, you do not believe in advertising do you? *A.*—Oh, I believe in advertising.

Q.—You, as a doctor? *A.*—You mean what kind of advertising?

Q.—With reference to your ability and what you can do? *A.*—I?

Q.—Yes. *A.*—I have never advertised as to what I could do, my ability, no.

Q.—Are you the most advertised man in the United States in the medical profession? *A.*—I do not think that is a fair question to ask me. I wouldn't know that.

Q.—You read the papers, you read the magazines? *A.*—I see my name here and there, yes.

Q.—And you are constantly seeking publicity are you not? *A.*—Absolutely not, I am constantly avoiding publicity, but I find it very difficult.

Q.—A few weeks ago in St. Louis you had an interview did you not with Richard L. Stokes, a staff correspondent of the *Post-Dispatch*? *A.*—No, sir.

Q.—He did not interview you? *A.*—Not in St. Louis.

Q.—Where did he interview you? *A.*—He came to see me in my office, I believe in February 1939.

Q.—In 1939? *A.*—February.

Q.—February. About Baltimore, May 13, 1939? *A.*—I was in Baltimore May 13, 1939, to speak for the Johns Hopkins University School of Medicine and for the University of Maryland School of Medicine and for the Maryland State Dental Association, and in connection with those public addresses I observed reporters here and there.

Q.—Doctor, you stated at that time that your wife owned all your property, you had no property, did you not?

Mr. Harrell:—**I object to that, Your Honor, it is certainly not an issue in this case.**

The Court:—**The Court sustains the exception.**

Q.—Doctor, since you have been in El Paso you have made several speeches have you not? *A.*—Do you want a list of them?

Q.—I asked if you made several speeches? *A.*—Many.

Q.—You have made one almost every day? *A.*—I spoke Tuesday noon for the El Paso Tuberculosis Society, Wednesday morning at 6:50 over the telephone to an audience of 250 in Pittsburgh; Wednesday noon to the Twenty-Thirty Club and the Rotary Club; Wednesday night to the El Paso Medical Society and I spoke this noon for the Lions Club, all on their invitation.

Q.—And your speeches were published in the papers? *A.*—No, sir.

Q.—Some of them? *A.*—No, sir.

Q.—Some of your remarks? *A.*—Yes, sir.

Q.—During the course of this trial with reference to medicine— *A.*—I was exceedingly careful not to discuss this trial and not make any reference to it whatever.

Q.—You did not directly discuss this trial? *A.*—Under no circumstances.

Q.—Now, Doctor, you have been here since Sunday? *A.*—I arrived on the airplane Sunday morning about 11:30.

Q.—Did you attend that school of physicians in the Hilton Hotel? *A.*—I am glad you used the word school; if you had used conference I would say I learned a great deal; it was a school to me, yes, sir.

Q.—Answer the question. *A.*—I answered it.

Q.—Did you attend the school at the Hilton Hotel? *A.*—I know of no school at the Hilton Hotel.

Q.—Did you attend the meeting of the doctors at the Hilton Hotel? *A.*—I listened, remained in the room about thirty minutes, listening to the experts.

Q.—How many of those experts did you talk with on matters pertaining to this case? *A.*—I do not believe I suggested or said to any expert anything in relation to what he would testify about.

Q.—Doctor, you are the head of one of the most powerful organizations in the United States, are you not? *A.*—Absolutely not.

Q.—It is not? *A.*—I am not, no, sir, I am an employee.

Q.—Who is the head of it? *A.*—The American Medical Association is a corporation not for profit. All of its policies are made by a House of Delegates, which is a representative body like the House of Representatives of the United States government, the county medical society sending a delegate to the state medical society, and the state medical society sending delegates to the American Medical Association, so that all of the policies of the organization are conducted by approximately 170 delegates, sent to the House of Delegates meeting by the physicians throughout the states, who vote according to the number of membership in various places. This House of Delegates then is responsible for electing the elective officers of the Association, including the President, the President-Elect, the Secretary, the Treasurer, the heads of various councils and, in addition to that, a Board of nine trustees who are physicians in practice, selected from various portions of the United States so as to represent the entire country. This Board of Trustees, consisting of nine physicians, I would characterize as the head of the American Medical Association, since they are responsible for the conduct of the affairs of the headquarters office, of the finances of the Association and of the employment of the employees of the Association and I am such an employee.

Q.—And who is in actual charge of them, who operates it that is, the American Medical Association from Chicago? *A.*—Well, I don't think any one operates the American Medical Association from Chicago. Now, if you are interested in the management of the headquarters office, and who is really in charge of the Association, I presume that is the field?

Q.—Who is really in charge of the Association? *A.*—The Board of Trustees is in charge of the Association.

Q.—Is the Board located in Chicago? *A.*—The Board consists of nine physicians, located in various portions of the United States. They meet at regular intervals in the headquarters office to conduct the affairs of the Association. At least once each month the Executive Committee of the Board meets in the headquarters office for conferences with the officials who are in charge of the various divisions of the work of the Association. The Executive Committee then reports to the full Board, which in that way manages the affairs of the American Medical Association.

Q.—Then who is the direct and individual manager up there? *A.*—We have a secretary and general manager who is responsible for the conduct of the headquarters office; the councils are independent of any management and report directly to the House of Delegates. They do not even report to the Board of Trustees. The business manager is in charge of all business of the Association, and I am personally in charge of THE JOUR-

NAL, of *Hygeia*, of the *Quarterly Cumulative Index Medicus*, of the nine special periodicals and of the work of the library and associated with the health educational functions.

Q.—And the A. M. A. was incorporated in the state of Illinois as a nonprofit organization? *A.*—Corporation not for profit.

Q.—Now, it possesses approximately $2,000,000 worth of property, more or less, does it not, in assets? *A.*—Yes, more or less.

Q.—Is it $2,000,000? *A.*—Well, approximately. I should think between, around $2,200,000 and $2,300,000, that is in its reserve. In addition to that it has assets in the form of building, property, machinery and employees, who are considered among the assets.

Q.—What are the value of the assets? *A.*—It is hard to evaluate employees. The tangible assets are perhaps another $1,000,000 or $1,500,000.

Q.—What would be the full worth of the A. M. A.?

***Mr. Brown:*—It seems to me this has gone far enough. We object to it.**

***The Court:*—Yes. The Court can't see the materiality. This proceeding is brought against one individual here.**

***Judge Sweeney:*—It is for the purpose of showing they are a nonprofit organization, and to ascertain where the revenue comes from, and how.**

***The Court:*—We have a suit here against one individual. You haven't a suit against the American Medical Association.**

***Judge Sweeney:*—I know it is not. It is against one individual.**

The Court:—The Court sustains the exception.

Q.—Doctor, who is paying for the expenses of this trial? *A.*—Your expenses or mine?

Q.—You are not paying our expenses. No, yours? *A.*—My expenses are being paid by my employer, the American Medical Association.

Q.—And the American Medical Association is back of this suit and assisting you in defending this suit, are they not? *A.*—Back of it? Just how do you mean?

Q.—You know what I mean by defending this suit. They are supporting you in the prosecution of this suit? *A.*—I would say that the American Medical Association would naturally sustain the expenses of the litigation.

Q.—And all of the experts that you have brought here from the various portions of the country have been sent by the American Medical Association, and at the expense of the American Medical Association, have they not? *A.*—I haven't the slightest idea, really, who is going to pay their expenses, or whether they will receive any remuneration. I am quite sure none of them has had anything to say about remuneration. As far as they know, or as far as I know, none of them is getting anything.

Q.—Doctor, you stated you had before you when you answered the telegram the full file with reference to Dr. Brunson? *A.*—Yes, sir.

Q.—How far back did that file go? *A.*—All the material in the file, or just that about Dr. Brunson?

Q.—About Dr. Brunson? *A.*—Dr. Brunson's material, I think, went back around 1921 or just before.

Q.—Did you have any letters there from Dr. Brunson to Olin West, Secretary, with reference to an investigation that he wanted to have? *A.*—I believe there was such a letter, yes.

Q.—Was there any carbon copy of a reply that was made by Olin West? *A.*—Well, quite frankly, Dr. West as Secretary keeps an entirely separate file, secretarial correspondence, and I would not know whether he had answered it or not.

Q.—That was not a full file? *A.*—It was a full file they gave me.

Q.—Had Dr. West ever spoken to you about Dr. Brunson asking for an investigation? *A.*—I don't believe he ever did, at least not prior to the filing of the suit. Since the filing of the suit obviously he must have spoken to me.

Q.—I mean prior to the filing of the suit? *A.*—No, I don't believe the name of Dr. Brunson ever came up there in the activities of the Association that came directly under my personal inspection, until the time I received the telegram from DeWitt Wallace.

Q.—In response to the telegram from DeWitt Wallace, in which he asked for the facts with reference to the Brunson treatment during the last twelve years, you answered by giving him what purported to be the facts beginning in 1921 of the Brunson-Holderness—

***Mr. Reynolds:*—Just a moment, your Honor please. I object to that question for the reason it assumes something not in evidence here at all. Judge Sweeney refers in his question, and has before asked for information over twelve years. Such is not the wording of the telegram. The telegram says what do you think of this treatment, then including a eulogy of Dr. Brunson, stating in the last twelve years he has effected 3,000 cures. The question certainly is improper.**

***The Court:*—The telegram speaks for itself, of course. You can answer the question.**

A.—In answering the question may I say that, from my knowledge of tuberculosis and of the inhalation treatment of tuberculosis, the answer to the question, the recommendation made to DeWitt Wallace, would have been approximately the same under almost any circumstances. In other words, all such treatments vary in such slight degree, one from the other, the Glass treatment, the Baird treatment, Holderness-Brunson treatment, Brunson treatment, vary in such slight particulars, one from another, according to the best available knowledge, the telegram would not have been seriously modified if there had been no report from Dr. Hruby, as far as the recommendation that such treatment to 2,800,000 people be not published.

Q.—Did your files show that Brunson and Holderness were in no way connected in 1922, in July 1922? *A.*—There is reference in the file, I believe, to the best of my memory, to certain data under the name of Holderness-Brunson, Brunson-Holderness, and other data referring just to Brunson. As to the exact demarcation I am not sure whether I am wholly clear; but again I say it would not make very much difference.

Q.—Now, Doctor, you knew that Dr. Hruby's statement referred to the Holderness treatment of 1921? *A.*—Yes—the Holderness-Brunson, I cannot distinguish between them personally. On the basis of my information I find it very difficult to distinguish between Holderness-Brunson and the Brunson treatment.

Q.—You have heard the testimony in this case? *A.*—Yes, sir.

Q.—As the Holderness and Brunson—*A.*—Yes, sir.

Q.— — the treatment was the Holderness treatment, did you not? *A.*—The treatment, as I can conceive of it, is essentially oily inhalation treatment. Beyond that the classification is not significant.

Q.—I am asking of the fact that it is the Holderness treatment? *A.*—Always referred to in the material which I saw as the Holderness-Brunson or Brunson-Holderness.

Q.—Then as a matter of fact your telegram in response to DeWitt Wallace was with reference to the 1921 treatment? *A.*—That portion of the telegram quoted from Dr. Hruby's article was obviously related to the publication by Hruby in 1921. That portion which followed was wholly without relationship to that, but with full relationship to modern scientific knowledge of oily inhalant treatment of tuberculosis.

Q.—That was the unquoted language you mean? *A.*—Yes.

Q.—Then when you made that statement in February of last year to Mr. Wallace you knew that you were not answering DeWitt Wallace's letter with reference to Dr. Brunson? *A.*—I answered the letter quite definitely.

Q.—And you did not distinguish between the time that it was the Holderness treatment in 1921 and the Brunson treatment subsequently? *A.*—May I say again that to me that does not make a particle of difference. I knew that the Brunson treatment, so called, was an oil inhalation treatment, I knew the Holderness treatment was an oil inhalation treatment. As far as the patient with tuberculosis is concerned, and as far as our knowledge of the lack of value and possible danger of oil inhalation treatment is concerned, the telegram was fully sound and would apply to either.

Q.—Do you know Ben Altheimer of Chicago? *A.*—I know him only as a man who wrote me a letter unsolicited.

Q.—Have you got the original letter? *A.*—Not with me.

Q.—Is that a copy of the original (showing paper to witness)? *A.*—I would say that was probably an exact copy; I wouldn't swear to it, but it is probably an exact copy.

***Judge Sweeney:*—We tender that in evidence.**

***Mr. Harrell:*—I am objecting to it, your Honor. It is a self-serving document, the statements in here are not true. It says Mrs. Bradford wrote an article concerning the treatment. Very obviously Mrs. Bradford never wrote such an article. It is hearsay.**

***The Court:*—What letter are you referring to there.**

***Mr. Quaid:*—The letter that Mr. Altheimer wrote to Dr. Fishbein. The answer is in evidence. This is asked to be introduced on the theory of retraction and so on, and failure to retract would be evidentiary of malice.**

***Mr. Harrell:*—I don't agree with you there, counsel, that failure to retract is evidence of malice. A person does not have to retract if he does not want to.**

***Mr. Quaid:*—No, but it is evidentiary.**

***Mr. Harrell:*—Diminishes damages, but I don't think you could increase for failure to retract.**

***Mr. Quaid:*—We pleaded it.**

Mr. Harrell:—**It is purely hearsay, matters contained in a letter from a Chicago lawyer, who is obviously plaintiff's agent, and the defendant has no opportunity for cross examination. It is a self-serving document.**

The Court:—**This letter is admitted in the pleadings, or has been offered in evidence, this letter by Dr. Morris Fishbein to this lawyer?**

Mr. Quaid:—**Yes, sir.**

The Court:—**This is not the one. The Court sustains the exception.**

Mr. Quaid:—**We want to make the offer, restricted offer of that portion that is in the nature of a request for retraction.**

Mr. Harrell:—**Objection.**

The Court:—**Let the bill show that.**

Mr. Quaid:—**Two offers now.**

The Court:—**You are offering it in its entirety?**

Mr. Quaid:—**First offered in its entirety, and you overruled that, and now offer the portion relating to retraction.**

The Court:—**The Court sustains the exception in both instances.**

Q.—Now, Doctor, you wrote Mr. Altheimer a letter? *A.*—I answered the letter.

Q.—Which is in evidence here? *A.*—I believe so.

Q.—And that was acknowledged, that was your answer? *A.*—I think so, yes, sir.

Q.—Do you publish this magazine or book (handing same to witness)? *A.*—It says on the front of the book prepared and issued by the Bureau of Investigation of the American Medical Association.

Q.—Do you print that? *A.*—I print it? The American Medical Association?

Q.—Yes? *A.*—Yes, sir.

Q.—The American Medical Association? *A.*—Yes, sir.

Q.—Now, that is under your direction, is it not? *A.*—This pamphlet is under my direction?

Q.—Yes, the printing of that pamphlet? *A.*—Not specifically, but I would say to some extent.

Q.—And the contents of this are governed, more or less, by you, are they not? *A.*—More or less has a wide range. I would say more or less, yes.

Q.—And this pamphlet is still being published? *A.*—Yes, sir.

Q.—And is still running this article here? *A.*—I can't see it from here.

Q.—You looked at it just now, I showed it to you? *A.*—Which do you mean? You mean the one labeled Brunson-Holderness Gas Treatment?

Q.—You are still running that? *A.*—To the best of my knowledge is still running, yes, sir.

Judge Sweeney:—**We offer this in evidence, Mr. Harrell.**

Mr. Harrell:—**I am objecting to that, your Honor. That is very counter to their contention here. Certainly that could not hurt Dr. Brunson if he is not using the treatment. He has abandoned it he said.**

Judge Sweeney:—**That has been published and carrying this article. We are introducing that for the purpose of showing malice.**

Mr. Harrell:—**There is no evidnece as to when this issue there is published. He said it was being published.**

Judge Sweeney:—**That was bought about six months ago.**

The Court:—**If you can identify the time of its publication you may do that, if you can establish the time of its publication. Let the Court read the article. If you can identify what time the publication was all right.**

Mr. Harrell:—**I think he has testified, your Honor, that it is still being published. I will waive my exception as to the time.**

The Court:—**The Court will overrule the exception and allow it to be introduced.**

Judge Sweeney:—**Mark it for identification.**
(Marked "P-1.")

Q.—Doctor, what is a nostrum? *A.*—Nostrum is a remedy without value for the condition for which it is offered and sold for that purpose.

Judge Sweeney:—**With permission of the Court I will read this to the jury.**

The article referred to, being marked "P-1," is as follows, being read to the jury:

P-1

"Brunson-Holderness Gas Treatment.—Asa Brunson and James S. Holderness exploited from El Paso, Texas, what the newspapers described as the 'gas treatment' for tuberculosis. It was one of the inhalant nostrums and seems to have had a base of liquid petrolatum, in which there were small quantities of oils of turpentine, eucalyptus and menthol, with camphor."

Q.—Doctor, you would not, in your letter to Altheimer, you would not take the opportunity of stating that you were wrong in this matter? You did not take the opportunity of stating that you were wrong? *A.*—Why should I take such an opportunity?

ON RE-DIRECT EXAMINATION

Questions by Mr. Harrell:

Q.—Doctor, I show you plaintiff's Exhibit 1, and will you tell the Court and jury just what that is? *A.*—This is a pamphlet entitled "Consumption Cures Cough Remedies, etc." In the period of twenty-five years to which I have referred, during which time we have investigated scores and scores of consumption cures, cough remedies and so forth, we have published from time to time articles concerning those which we have investigated. Now, then, this book is a record of such treatments which have been brought up, some of them since 1905, the vast majority of them now out of business. For instance the Glass treatment, which consisted of petrolatum, oil of eucalyptus and menthol, was developed around 1910 and discarded. The Baird inhalant treatment, which consisted of petrolatum and terpene derivatives, was developed around 1910 and after a while it was discarded. Dr. Glass's license was removed by the state of California, and he discontinued his treatment and moved away. The Sartolin treatment consisted of smoking eucalyptus leaves and charcoal. Some one thought that would cure tuberculosis, and he announced it and people breathed it, and then it was found to be without value and was discarded. Now, among others, was the Brunson-Holderness gas treatment, and, as I have said, we have available the approximate analysis of that product made in 1921. You will observe that the article on the Brunson-Holderness gas treatment is entirely in the past tense as far as Brunson-Holderness gas treatment is concerned. Exploited—it does not say exploits but exploited. And thus this is a history of failures in the treatment of tuberculosis.

ON RE-CROSS EXAMINATION

Questions by Judge Sweeney:

Q.—But that is still being published now? *A.*—It is a history of failures.

Q.—And it is being published now? *A.*—Yes, sir.

At this point Mr. Harrell announced "The defense rests, your Honor."

Then Mr. Quaid said "The plaintiff rests."

Thereupon the jury retired from the court room, and Mr. Brown renewed the motion for an instructed verdict.

THE COURT:—The Court will hear from you now on the proposition presented at that time. The Court deemed it expedient not to pass on it at that time. The Court will hear from the plaintiff and the defense.

Thereupon counsel for the defendant presented his argument in support of the motion for an instructed verdict, and counsel for plaintiff replied thereto, and counsel for defendant replied to plaintiff's argument; whereupon the following proceedings were had:

The Court:—**Mr. Marshal, put the jurors back in the box. The Court, gentlemen, is going to give a peremptory instruction to the jurors to find in favor of the defendant, Morris Fishbein, the Court granting the motion for a peremptory instruction.**

Judge Sweeney:—**Did you state you were going to instruct the jury to return a verdict for the defendant?**

The Court:—**Yes.**

Judge Sweeney:—**Would we be permitted to take a nonsuit?**

Mr. Reynolds:—**We can't agree to that at all.**

The Court:—**It is not an agreement, it is a question of law in this state.**

Mr. Brown:—**Any time up to the time the Court announces his decision, but now they wait until the Court stated he is going to rule against them, and I doubt very seriously their right.**

Mr. Quaid:—We would like for the record to show we asked that before you instructed the jury, this being a jury case.

The Court:—**The Court will deny the privilege of entering nonsuit at this time.**

The jury thereupon returned to the jury box.

The Court:—**Gentlemen of the jury, the Court is disposing of this case on questions of law and as a matter of law by the Court. Therefore the Court instructs the jury in this case to return a verdict in favor of the defendant, Morris Fishbein, which, in effect, withdraws it from the jury as far as submission of any issues of fact for determination by the jury in this case is concerned, the Court disposing of the same as a matter of law. The Court therefore instructs the jury to return a verdict substantially as follows: "We, the jury, under instructions of the Court, find in favor of the defendant, Morris Fishbein." It will not be necessary for you to retire to the jury room from the jury box. The gentleman on the end will act as foreman and will sign the verdict.**

[Draft of verdict was thereupon signed by the juror indicated by the Court.]

The Court:—**The Clerk will read the verdict.**

The Clerk **(reading):—"We, the jury, under instructions of the Court, find in favor of the defendant, Morris Fishbein," Signed B. F. Littleton, Foreman.**

The Court:—**The verdict will be received, filed, and judgment entered accordingly.**

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SATURDAY, JULY 22, 1939

THE MARYLAND MEDICAL EXAMINER ACT

On May 3 the governor of Maryland approved an act of the legislature abolishing the office of coroner in the state of Maryland. For the coroner system, which has functioned in Maryland since colonial days, the act substitutes a "Department of Post Mortem Examiners." "The head of said Department shall be a Commission, consisting of the Professor of Pathology of the University of Maryland, the Professor of Pathology of the Johns Hopkins University, the Director of Health of the State of Maryland, the Commissioner of Health of Baltimore City and the Attorney General of Maryland. The said Commission shall serve without compensation." Obviously the composition of the proposed commission should free it of any taint of political partisanship.

The most important duty of the commission is to appoint, for the city of Baltimore, a chief medical examiner at an annual salary of $6,500 and two assistant medical examiners at an annual salary of $5,000 each. These examiners "shall be licensed Doctors of Medicine, and shall have had at least two years post-graduate training in pathology." The commission also appoints, under the merit system of the Baltimore city charter, such clerical and other employees as may be necessary and "shall see that the proper equipment is provided for the use of the Chief Medical Examiner and Assistant Medical Examiners, or shall arrange for the use of the Laboratory and other equipment of the State Department of Health, the Health Department of Baltimore City, the State Police Department and the Police Department of Baltimore City."

For each outlying county the commission appoints a deputy examiner. If necessary, more than one deputy may be appointed for a county. In the selection of deputy examiners, organized medicine receives recognition. The appointments are made from a list of at least two licensed physicians submitted by the local county medical society. Deputy examiners are on a fee basis. Their work is limited to the view and preliminary investigation. If necropsy or further investigation is necessary, this is done by the chief or assistant medical examiner of Baltimore, the local county paying into the city treasury of Baltimore the sum of $25 for each case.

The various medical examiners "shall have the power to administer oaths and affirmations, and take affidavits and make examinations as to any matter within the jurisdictions of their respective offices, but . . . shall not have the power or be required to summon a Jury of Inquisition." The medical examiner is required to act "when any person shall die in Baltimore City, or in any County of the State, as a result of violence, or by suicide, or by casualty, or suddenly when in apparent good health or when unattended by a physician or in any suspicious or unusual manner." The records of any medical examiner "shall be received as competent evidence in any Court of this State of the matters and facts therein contained." If the medical examiner's investigation reveals any suspicion of violence or unnatural cause of death, he must submit his observations promptly to the state's attorney. The abolition of the coroner's inquest obviates a feature of most existing coroner laws which makes the necropsy a part of the inquest and thus interferes with proper medical investigation of deaths not due to violence. Thus necessary criminal investigation is placed in the hands of the state's attorney and police officials, where it properly belongs.

In the populous urban jurisdictions of Suffolk County (Boston), Mass., New York City and Essex County (Newark), N. J., the medical examiner system has rendered a high type of medicolegal service. The problem of making a similar type of service statewide in its application and available to less densely populated rural districts was not adequately solved by the statewide medical examiner system adopted by Massachusetts in 1877. The Maryland plan solves the problem by making the Baltimore medical examiner's office a central agency whose services are available throughout the state. This plan might not work equally well in states of larger area. A bill introduced in the recent session of the Michigan legislature, which bill unfortunately died in committee, proposed an appointive state medical examiner responsible for the work of appointive county examiners. In rural districts an examiner might serve two adjacent counties.

The Maryland act makes of the Baltimore medical examiner's office, if competently staffed and properly equipped, a statewide agency comparable to the medicolegal institutes of continental Europe. Since the professors of pathology of the two medical schools of Baltimore are permanent members of the commission, correlation of the work of the examiner's office with the medical school curriculum should be possible and should lead to better instruction in forensic medicine than most medical students now receive.

EARTHWORMS AS CARRIERS OF SWINE INFLUENZA

Earthworms may function as intermediary hosts for the swine influenza virus; while the virus is in the bodies of the earthworms it is "latent" or noninfectious. These basic contributions to modern infectious theory are reported by Shope [1] of the Rockefeller Institute. Swine influenza was first recognized as a clinical entity in 1918, at the time of the pandemic of human influenza. At that time swine influenza was assumed to be a veterinary manifestation of the human disease. In swine the disease is characterized by fever, anorexia, extreme prostration, cough and abdominal breathing, the duration of the prostration being from two to six days and the mortality from 1 to 4 per cent. Economic loss from this disease is mainly due to loss of weight (40 pounds, 18 Kg.) during the acute stage. The few fatalities are apparently due to bronchopneumonia.

Veterinarians of twenty years ago demonstrated that influenza can be transmitted to normal swine by intranasal instillation of bronchial mucus or by a similar instillation of extracts or emulsions of infected lungs. A number of micro-organisms were isolated from such infectious materials, the most constant being an influenza-like bacillus. Pure cultures of this "swine influenza bacillus," however, would not reproduce the disease in normal hogs even when given in massive intranasal doses. Bacteriologists [2] therefore turned their attention to the possibility that the causative agent is a filtrable virus. Berkefeld filtrates of infectious material, however, were found to be noninfectious for normal hogs. The most that was ever produced by such filtrate was a transient loss of appetite without fever, cough or noticeable prostration.

Shope, however, found that simultaneous inoculation with the presumably noninfectious filtrate and the presumably saprophytic bacillus would cause characteristic fulminating symptoms in normal hogs with a mortality rate of about twice that of the natural infection. He further found that both the natural disease and the artificially induced composite infection led to the development of an effective immunity, convalescent blood in both cases being capable of preventing the disease. Hogs injected with the filtrate alone also developed effective humoral antibodies even though they did not demonstrably come down with the disease. The bacterial vaccines alone, however, were apparently nonimmunizing.

Afterward it was shown by English investigators [3] and confirmed by Shope [4] that the filtrate alone is pathogenic on nasal instillation in mice, regularly producing a fatal pneumonia. The pneumonic lungs of the virus-infected mice were usually sterile bacteriologically but were capable of transmitting pneumonia to normal mice. By means of the delicate mouse test, accurate virus assays may be made of suspected materials.

Several types of contagiousness for swine influenza were deduced from these data. In the first type, both virus and the concomitant bacillary agent may be transferred in respiratory secretions, causing typical herd epidemics. Or the virus alone or virus accompanied by unrelated strains of bacteria can be transferred. Such fractional infection produces no apparent symptoms but leads to an effective immunity. Finally, Haemophilus influenzae suis alone can be transferred in the secretions and may even set up a carrier condition in normal hogs, with the development of no symptoms and no demonstrable immunity.

During the last twenty years an annual outbreak of swine influenza has been recorded in most swine-producing states. Bacteriologic surveys of the swine population in these states during the eight to nine month interepizootic periods showed that the bacterial component of the influenza complex is often found in the upper respiratory tract of recovered swine. The virus component, however, was invariably absent from these animals. The yearly outbreak of the disease, therefore, could not be accounted for as a result of a fortuitous recombination of virus and bacteria as a result of carrier conditions. Some outside reinfection with the virus component was therefore indicated. Search for this outside source eventually narrowed down to an examination of swine lungworms. These nematodes are fairly common in the bronchioles of apparently normal swine in most hog-producing states.

The life cycle of this nematode is fairly well known.[5] The embryonated ova passed in swine feces are swallowed by earthworms, in the bodies of which the ova hatch as a first stage larva. The larvae eventually develop to the third embryonated stage in the earthworm. The larvae remain in the third embryonated stage until the earthworms are ingested by swine, when they are liberated in the gastrointestinal tract, penetrate the intestinal mucosa and eventually reach the respiratory tract by way of the lymphatics and blood stream. Under favorable conditions the hog to hog earthworm cycle may be completed in thirty days. Under less favorable conditions it may require several years.

In order to test the possibility that this lungworm may serve as the virus carrier, feces and bronchial exudates containing embryonated Strongylus ova or adult nematodes were obtained from swine during an attack of swine influenza. This nematode material was mixed with loamy top soil and fed to earthworms. From one to three months later worms were removed from the barrels of top soil and fed to swine. Swine thus fed did not develop demonstrable symptoms or virus-neutralizing antibodies. When such feedings were supplemented by repeated intramuscular injections with living cultures of Haemophilus influenzae suis, however, characteristic influenza symptoms resulted, followed by

1. Shope, R. E.: Science **89**: 441 (May 12) 1939.
2. Shope, R. E.: J. Exper. Med. **59**: 201 (Feb.) 1934.
3. Andrewes, C. H.; Laidlaw, P. P., and Smith, Wilson: Lancet **2**: 859 (Oct. 20) 1934.
4. Shope, R. E.: J. Exper. Med. **62**: 561 (Oct.) 1935.
5. U. S. Dept. Agr. Tech. Bull. 456, 1934.

the development of specific virucidal antibodies. The clinical diagnosis of virus infection was confirmed by mouse inoculations.

The surprising observation was made that the virus is not demonstrable by direct inoculation of mice with emulsions of earthworms known to be carriers of virus-infected larvae. If this observation is confirmed by a larger series of tests, it would suggest the possibility of a saprophytic transformation of the virus in the lungworm or even a complex life cycle in the earthworm analogous to that of certain pathogenic protozoa. Other explanations are, of course, possible. If similar saprophytic transformations of poliomyelitis and other virus diseases occur in nature, much of the conventional epidemiology of these infections will have to be rewritten.

Shope summarizes his tentative conclusion as follows: "Lungworm larvae from pigs with swine influenza harbor swine influenza virus throughout their development both in their intermediary host, the earthworm, and their definitive host, the swine. The virus apparently lies latent within the lungworm after the parasite has finally migrated to the swine respiratory tract and is only liberated or activated to cause infection when a provocative stimulus is applied." In his hands multiple intramuscular injections with living Haemophilus influenzae suis cultures or a single intraperitoneal injection with calcium chloride solution were equally effective as this potentiating agent.

Whether or not the swine influenza virus is an aberrant type of the human influenza virus is still controversial. Shope,[6] however, is inclined to deduce from serologic evidence that "the virus of swine influenza is a surviving prototype of the agent primarily responsible for the great human pandemic of 1918." If this is so, hogs and earthworms may conceivably serve as the source of some future human epidemic.

6. Shope, R. E.: J. Exper. Med. **63**: 669 (May) 1936.

Current Comment

A NEW DIPHTHERIA ANTITOXIN

The preparation of a new highly purified diphtheria antitoxin of allegedly superior therapeutic properties and almost complete freedom from allergic toxicity has been recently announced by Pope and his colleagues[1] of the Wellcome Laboratories, England. The technic by which this purification was accomplished involved a by-product of a study of heat denaturation of serum proteins. An antidiphtheritic serum containing 7,000 antitoxin units per gram of dissolved protein was changed to a serum fraction containing 27,000 antitoxin units per gram of protein. The result was ascribed to the action of a fibrinolytic enzyme in the serum fraction. A method of large scale purification of diphtheria antitoxin based on this fractional enzymic action has been developed; animal tests of this refined antitoxin indicate that it is more rapidly and completely absorbed from subcutaneous tissues than native antitoxin. It is also retained longer in the bodies of injected animals and possesses two or three times the therapeutic value of the native antitoxin. Although clinical confirmation is lacking, it is apparent that the possibility that such enzyme purifications may be generally applicable to therapeutic antiserums demands prompt investigation.

1. Pope, C. G.: Brit. J. Exper. Path. **19**: 245 (Aug.) 1938.

INSULIN AND METRAZOL IN SCHIZOPHRENIA

Both insulin shock and metrazol therapy seem to be proving beneficial in cases of schizophrenia. The original supposition as to the basis for this effect, however, has been generally rejected. In an attempt to find a common denominator for the mechanism of action of metrazol and insulin on schizophrenic patients, Meduna and Rohny[1] determined the lactic acid content of the blood and the sugar and ketone bodies in the blood of a number of patients treated by these methods. Metrazol was administered according to their usual routine and the lactic acid content of the blood estimated before the intravenous administration of metrazol, immediately after the epileptiform seizures and fifteen, thirty and sixty minutes later. The lactic acid level of schizophrenic patients at rest was found to be normal; immediately after the convulsion there is a steep rise in the lactic acid content of the blood; fifteen minutes after the convulsion the lactic acid values are approximately identical with those obtained immediately after the convulsion, and after thirty and sixty minutes, although a considerable decrease in values is evident, they still have not reached normal. The values of blood sugar obtained on an empty stomach in a resting condition are generally low normal. Immediately after the convulsion there is a small rise in blood sugar, which reaches its high point about thirty minutes after the injection. After an hour there is considerable decrease but the values then obtained are still above the initial level. There is an increase in acetone and diacetic acid after the metrazol convulsion, which reach their maximum level about fifteen minutes after the epileptiform seizure. The effects of insulin therapy indicate that during insulin coma there are no important changes in the lactic acid content of the blood, although there is usually a slight increase. The effect of insulin shock on carbohydrate metabolism however is diametrically opposed to that of the metrazol convulsion. Insulin causes a definite decrease in the sugar content of the blood. These investigators believe that the postconvulsive alterations of carbohydrate metabolism resulting from metrazol in the direction of diabetes mellitus may be considered as reactions of the organism and not as direct results of the action of metrazol. After the administration of insulin the organism endeavors to compensate for the toxic effect of the drug by an alteration of carbohydrate metabolism also in the direction of diabetes mellitus. Although this interpretative hypothesis may not receive general acceptance, the work on which it is based constitutes a study of fundamental importance in the elucidation of the mechanism of the shock treatment of schizophrenia.

1. Meduna, L., and Rohny, B.: Insulin and Cardiazol Treatment of Schizophrenia, Lancet **1**: 31 (May 20) 1939.

ORGANIZATION SECTION

CONFERENCE ON MEDICAL PATENTS

By action of the Board of Trustees, pursuant to a suggestion from the House of Delegates, a conference on medical patents was held at the headquarters building of the American Medical Association March 16, 1939. Dr. Roger I. Lee, member of the Board of Trustees, presided. Representatives of universities with medical schools, officials of state medical societies, pharmaceutic companies having products before the Council on Pharmacy and Chemistry, foundations interested in medical patents and others especially interested in this subject were invited.

PURPOSE OF THE CONFERENCE

CHAIRMAN LEE: On behalf of the Trustees of the American Medical Association, it is a great pleasure to welcome you here. We appreciate that this distinguished group is willing to give some of their precious time, a good deal of their thought and energy to help in this complicated problem of medical patents. This conference, as you know, has been called by the Trustees of the American Medical Association under authorization of a vote of the House of Delegates of the Association in 1938. It is not anticipated that this conference will result in specific resolutions or recommendations but rather in a clarification of this difficult problem, and perhaps in some indication as to proper trends for future programs.

I have no intention of abusing the privilege and honor of presiding over this conference by inflicting on you any extended remarks at this time, although I must confess that I reserve the right of participating in the general discussion perhaps later in the day.

The Constitution of the United States provides that "The Congress shall have the power to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries."

By tradition, the medical profession of this country has felt disinclined to avail itself of the use of patents in medicine. The principles of medical ethics of the American Medical Association upholds this tradition. The Judicial Council of the American Medical Association has exclusive jurisdiction over problems of medical ethics. This council has given most thoughtful consideration to suggestions of change or amendments of the principles of medical ethics in regard to medical patents but has felt it has not been desirable to make any of the proposed changes or amendments.

This course has been approved from time to time by the House of Delegates, the policy-forming body of the American Medical Association. Indeed, certain resolutions were introduced into the House of Delegates with the avowed purpose of developing a more positive attitude against medical patents, of course so far as doctors of medicine were concerned. These resolutions have been referred to the Board of Trustees of the American Medical Association. Thus it is that this conference has been called in the hope that discussion along broad lines may eventually be developed into a working and workable program.

In the meantime the problem becomes larger, much more complicated and much more difficult. What seemed at first to be a problem merely as to whether or not a doctor should receive presumably a small reward for his ingenuity in devising a new gadget like, let us say, a stethoscope, or discovering a new process for making a drug, is all changed. Every time science makes a contact with medicine or public health, new problems arise as far as the possibilities of medical patents are concerned. The single illustration of the so-called biologic products may suffice to convey my meaning. One fundamental change in this problem is that the idea of the doctor as inventor or discoverer is quite supplanted nowadays by the idea of the invented or discovered object, if that is of value in therapeutics or public health.

In other words, if that change is incorporated into the old tradition, it is no longer a tradition of doctors but a tradition of medicine and public health. At once that may involve any scientist or any scientific laboratory. It involves every university. It involves scientific industry and it certainly involves the public. It is curious, however, that with these changes there seems to be less discussion concerning the monetary rewards to the inventor or discoverer and less said about royalties to the inventor or discoverer.

Certain principles have come to the fore, such as the protection of the public, the maintenance of freedom of research, the relationship of the university or research institution to this whole problem, and the relationship of academic research, so called, and industry.

A BRIEF HISTORY OF THE SCARLET FEVER PATENT

GLADYS H. DICK, M.D.
CHICAGO

Fifteen years ago Dr. George Dick and I published from the John McCormick Institute reports of experimental work which resulted in five different preparations for the prevention and treatment of scarlet fever. At that time we hoped it would not be necessary for the United States Public Health Service to license these various preparations until they could be used under close observation for a period long enough definitely to establish the most effective dosage for each, to study the causes of deterioration of the toxin, and to determine which of the various preservatives used in commercial preparations was most suitable for the toxin. But the immediate demand for the materials resulted in licenses being issued by the United States Public Health Service before any manufacturer was ready to market products suitable for use. And there promptly appeared on the market serums which were nothing more than the old, unconcentrated and unrefined antistreptococcus serums sold under the new label of "Scarlet Fever Antitoxin." The labels of these serums carried claims for potency far beyond any justified by actual tests. They were not effective in the treatment of scarlet fever and caused a high incidence of severe serum disease. Preparations purporting to be appropriate dilutions of scarlet fever toxin were sold for making cutaneous tests to determine susceptibility to scarlet fever. For the most part, these cutaneous test solutions contained no demonstrable toxin. Improperly prepared, unstandardized preparations of scarlet fever toxin were sold for active immunization in any dosage the particular manufacturer chose.

In this chaotic situation it was impossible for the medical profession or the public to derive benefit from the discoveries reports of which had been published. An appeal to Dr. McCoy, director of the Hygienic Laboratory of the United States Public Health Service, now known as the National Institute of Health, resulted in a telegram and the following letter:

TREASURY DEPARTMENT
UNITED STATES
PUBLIC HEALTH SERVICE
WASHINGTON, D. C.

November 12, 1924.

Dr. George F. Dick,
% John McCormick Institute for Infectious Diseases,
# 637 South Wood Street, Chicago, Illinois.

Dear Doctor Dick:—

I am amplifying somewhat my telegram of this date in reply to yours sent from Columbus, Ohio, yesterday.

Some months ago, when the streptococci acquired new interest in relation to scarlet fever, we stated to licensed manufacturers, in response to inquiries, that in our opinion there was no objection to marketing packages of antistreptococcus serum for which license was held in such way that it would indicate that the scarlet fever type of organism had been utilized in the immunization of the animals. It is possible that we were

in error in this, but, as I said in my telegram, I believe it would be necessary to have a legal decision to settle this point.

I am sending you a copy of the Biologics regulations, and in the back of the pamphlet you will find the law; there is nothing in the law which actually enables the government to *prevent* the placing of unlicensed preparations on the market; the law however provides adequate penalties for violation and is enforcible through the usual court proceedings, the action, I take it, being brought in the United States court.

The more we have considered the requirements which you feel should be met the more we have been impressed with the difficulties of commercial production; just at present Dr. Dyer and I feel that the best and perhaps the only way to comply completely with your requirements would be for yourselves to take out patents on your preparations, handling the patents in any manner you see fit. This would give you the opportunity to permit the manufacture in any limited number of places in accordance with your own judgment. I take it that there is no difficulty in this from the ethical point of view because, according to our understanding, this is just what was done by the Toronto group of research workers in connection wtih insulin.

With kindest regards, I am

Very truly yours,

G. W. McCoy,
Director.

Patented July 28, 1925. 1,547,369

UNITED STATES PATENT OFFICE

George F. Dick and Gladys Henry Dick of Evanston, Illinois, Scarlet-Fever Toxin and Antitoxin and Process for Producing the Same. No Drawing. Application filed November 28, 1924. Serial No. 752,792.

There were certain quality requirements urgently needed at that time:

1. Specificity and accurate standardization of all scarlet fever toxin and of all scarlet fever antitoxin preparations.

2. Refinement and concentration of the serums sold as scarlet fever antitoxin, both to obtain an effective therapeutic or prophylactic dose in a reasonable volume and to eliminate unnecessary serum disease.

3. Prohibition of the addition of horse blood or serum to preparations of the immunizing toxin.

4. A requirement that the various preparations should be distributed in dosage shown to be effective so that the doctor could, if he wished, give enough toxin to prevent, or enough antitoxin to cure, scarlet fever.

We had learned from officers of the United States Public Health Service that they were not in a position to enforce all of these requirements.

You will note that the date of Dr. McCoy's letter is Nov. 12, 1924, a year after publication of reports of the experimental work. During this time the situation had steadily been growing worse. One manufacturer had begun to make quite good antitoxin, but others were apparently engaged in raising the potency claims on their labels.

The idea of a patent which Dr. McCoy suggested was distasteful to us and we could see that it would involve arduous work and trouble of a type to which we had not been accustomed. We were doubtful of our ability to carry it through. But following receipt of Dr. McCoy's letter, we sought advice from Dr. Hektoen, from Dr. Puckner, who was then secretary of the Council on Pharmacy and Chemistry, and from Dr. William H. Welch, all of whom agreed that a patent should be obtained. They pointed out that it offered the only means for obtaining the supplementary quality control necessary. We then applied for a patent. The heading of the patent which was issued is reproduced at the bottom of Dr. McCoy's letter. You will note that it gives the application date as Nov. 28, 1924, sixteen days after the letter was written.

The first part of the interval between this date and issuance of the patent on July 28, 1925, was employed in seeking advice as to the best method of administration. We were surprised to find a unanimous agreement against assigning the patent to an institution or to a university and in favor of Dr. McCoy's suggestion that a committee be formed for the sole purpose of administering this patent as the most effective method of insuring that it would not degenerate into a patent for revenue rather than one for the control of quality and improvement of the products.

A committee was formed, consisting of Dr. Hektoen, director of the John McCormick Institute, where the scarlet fever work had been accomplished; Mr. Wallace R. Lane, a Chicago lawyer who had donated his services and had helped finance the expense in connection with obtaining the patent, because after consulting with various doctors, including Dr. Pusey, then president of the American Medical Association, and his own brother on the faculty of Yale Medical School, he had concluded that it was for the public good; Mr. and Mrs. James A. Patten, well known philanthropists; Mr. Arthur G. Leonard, president of the Union Stocks Yards and Transit Company, who had generously financed the work on scarlet fever antitoxin, furnishing barns, horses and veterinarians; and Dr. George Dick and myself.

The first duty of the Scarlet Fever Committee was to make good materials available. Its second duty was to get the poor materials off the market.

It appeared that in order to accomplish the first purpose it might be necessary to manufacture the products. For this reason the Scarlet Fever Committee was incorporated June 27, 1925, under a charter which would permit it to engage in production and distribution if necessary. From the time the patent was issued in July till the first of October it was ignored by manufacturers, who continued to distribute inadequate preparations. This made the necessity for manufacture by the Scarlet Fever Committee appear probable, and arrangements for this were about to be made when Mr. Weicker of E. R. Squibb and Sons came to Chicago to request an exclusive license. We had been advised against granting an exclusive license for two reasons: (1) it gives the licensed manufacturer an unearned advantage, and (2) the period covered by a patent is necessarily one of education and improvement from which no manufacturer who may eventually produce the materials should be excluded.

For these reasons it had been decided to license all commercial manufacturers of good repute, who were licensed by the United States Public Health Service, on a uniform basis that would ensure a wide and inexpensive distribution. Free licenses were issued to manufacturing health departments. The work of the Scarlet Fever Committee was to be confined to research directed toward improving the products and to the control of specificity, quality, potency, dosage and advertising literature, leaving responsibility for sterility and such other factors as they were in a position to control with the United States Public Health Service.

E. R. Squibb and Sons decided to take a nonexclusive license, thus relieving the Scarlet Fever Committee of the immediate necessity for manufacturing. The following days were strenuous, as Mr. Weicker went over the license contract prepared by our lawyers and every phrase was discussed at length. Modifications were made where he was able to demonstrate from his long experience that they were indicated. Thus the license contract, as it stands, was the result of cooperation between research and commercial manufacture, supervised by expert legal minds. It is probably because of this that no situation has ever arisen which was not provided for in the original contract. It has enough flexibility to permit prompt adoption of improvements and is rigid enough to furnish control of quality.

The mere signing of a contract does not necessarily result in good materials. This requires hard work on the part of both the licensor and the licensee.

Following this first license, other manufacturers appeared at intervals of several months until most of the leading manufacturers were operating under licenses and supplying the market with specific, standardized preparations, distributed in proper dosage.

It was then time to turn to the second duty of the Scarlet Fever Committee, that of removing from the market products of poor quality made by unlicensed[1] manufacturers. There was some urgency in this, as unlicensed manufacturers, because they were free to exaggerate the potency of their products, had an advantage in seeking large contracts such as those with the Army, Navy and the various health departments. This penalized manufacturers who were trying to market good, correctly labeled materials and resulted in a wider use of the poor products against which we were trying to protect the public.

The first step toward ridding the market of inadequate and falsely labeled products was an attempt to persuade the manufacturers concerned that it would be to their own interest as well as that of the public to take out a license and avail themselves of the help and experience the Scarlet Fever Committee could offer.

1. Throughout this report the term "licensed" is used to indicate manufacturers or products licensed under the patent as well as licensed by the United States Public Health Service, and the term "unlicensed" refers to manufacturers or products not licensed under the patent, although licensed by the United States Public Health Service.

In the conferences it soon became apparent that there was a definite reason for their refusal to cooperate. As stated to us, this reason was that, while they approved patents for profit, they did not approve patents for the control of quality. One manufacturer offered to sign a contract requiring twice the usual royalty payments, providing his products would not be subjected to quality control. We were told that the precedent of a United States patent for the control of quality must be destroyed. He explained that, although he understood the Scarlet Fever Committee was fair and reasonable, most scientists who made discoveries of importance would prove temperamental, and if the patent on scarlet fever toxin and antitoxin was allowed to stand, the manufacturers might find themselves greatly hampered by patents for the control of quality administered by unreasonable people.

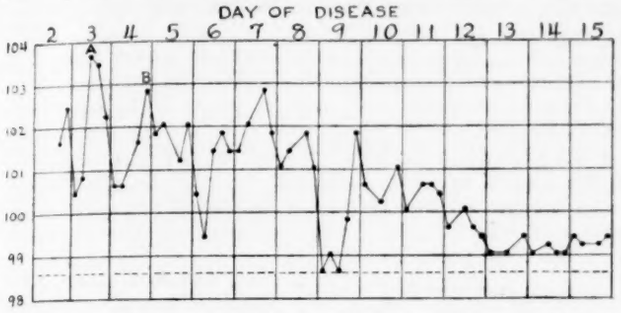

Chart 1.—Typical result with an unlicensed product: Temperature curve in a case of scarlet fever treated with two doses of improperly prepared serum. *A*, 20 cc. of serum given on first day of rash; *B*, 20 cc. of serum.

Thus the infringement suit which the Scarlet Fever Committee instituted against an unlicensed manufacturer was actually a suit to learn whether or not the precedent of a patent for the control of quality would be permitted to stand. In view of this we did not expect any help from our own licensees. It seemed reasonable that they would assist the defendant in any way they could without jeopardizing their own position and that they might help defray the expense of the defense.

Mr. Lane had repeatedly warned us that the granting of a patent in the United States often amounts to conferring the privilege of instituting an infringement suit. Since it had for some time been apparent that a suit could not be avoided, preparation for it was begun before the defendant was selected. Since we preferred to have but one such suit, it seemed advisable to select as defendant a strong company, capable of employing the best legal talent and defending itself so well that other infringers would be convinced that they had little hope of winning if the first defendant lost. Since the proceedings were to take place in New York, and the Lederle Laboratories had been distributing preparations of both the toxin and the antitoxin believed by the Scarlet Fever Committee to be undesirable, they were selected as defendant. Suit was filed against them and it eventually came to trial in the federal court of the Southern District of New York. It lasted six weeks and was one of the longest and hardest fought battles in the history of that court. The decision established the complete validity of the patent on scarlet fever toxin and scarlet fever antitoxin, enjoined the defendant from further manufacture or distribution of these products without a license and compelled payment of damages. This company has since secured and is operating under a license from the Scarlet Fever Committee. Following this decision Eli Lilly and Sons, still refusing to accept a license, voluntarily agreed to refrain from the manufacture or distribution of the scarlet fever toxin and antitoxin and paid damages for past infringements. Other unlicensed manufacturers sought licenses.

Having succeeded in removing from the market the products which gave unsatisfactory results because of poor quality or lack of standardization, the Scarlet Fever Committee was free to devote all its facilities to testing the products of licensed manufacturers and investigations directed toward improving the quality and the efficacy of these products.

Investigations had shown that scarlet fever toxin, like many other biologic materials, is extremely sensitive to changes in reaction toward either the acid or the alkaline side. It was found that, if toxin is passed through porcelain filters after it is diluted, it deteriorates because of absorption of alkali from the porcelain. Some factories were unable to fill the diluted toxin which we furnished them in bulk without loss of potency. It was learned that this was due to soluble alkali in the burets, in the rubber connections and in the final containers, or in the rubber stoppers employed. Manufacturers who used the best grade of nonsoluble glass were also troubled by deterioration of their toxin, owing to soluble alkali in their rubber stoppers. Investigation showed that the soluble substances in the rubber stoppers may be due to the chemicals used in the compound but that they may also come from green soap employed to lubricate the molds or from caustic soda used for cleaning the molds. The rubber stopper problem was solved by the use of pure gum rubber stoppers poured in chromium plated molds without the use of a lubricant.

The problem of alkali in glass is still vexatious. Even with glass containing a minimum of alkali, heating to mold into ampules or vials causes some decomposition, accompanied by release of an alkaline vapor which, when the molded container is cooled, is deposited in a film on the inner surface of the vial or ampule. This film can be removed by careful washing, but it is often not removed before the container is filled. It is frequently the cause of deterioration in sensitive biologic or chemical preparations.

Slight amounts of alkali in distilled water employed for making dilutions is another common cause of deterioration.

The difficulties with glass, rubber and distilled water are cited as examples of the numerous technical problems the Scarlet Fever Committee has had to solve for the manufacturers. In addition to solving such problems, we have maintained clinical material and assistants for testing every filling of every dilution of all lots of each kind of material produced by all licensed manufacturers. We had hoped that, with experience, the manufacturers would become increasingly independent so that it would be necessary to test only an occasional lot from each factory and that they would be fully self sufficient before expiration of the patent. There appears to be little hope of this, as we still find it necessary to refuse as unsuitable for distribution on the basis of claimed potency from 4 to 15 per cent of the products submitted for test.

It has been claimed that a patent interferes with improvement of the products. That the opposite is true is shown by the steady improvement in the quality and potency of scarlet fever toxin and antitoxin. To illustrate this, I have brought samples of scarlet fever antitoxin made by unlicensed manufacturers and by licensed producers; some made by the same manufacturers before and after license under the patent. Not only are the licensed products smaller in volume and higher in potency, but the temperature charts indicate that there is a corresponding difference in clinical results.

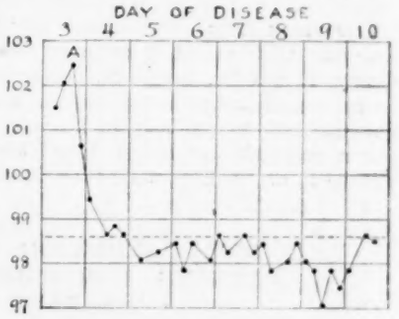

Chart 2.—Typical result with a licensed product: Typical temperature curve in a case of scarlet fever treated with scarlet fever antitoxin on third day of disease, first day of rash. *A*, one therapeutic dose; temperature normal next day.

The toxin has been improved through reduction of the protein content by the use of synthetic medium and by chemical purification. The purified toxin is made by a process which results in a white powder containing from 25,000,000 to 40,000,000 skin test doses per gram. This is the most potent biologic product available. Experiments on further purification are in progress.

It has been claimed that a patent interferes with research. So far as we know, complaints on this ground have come from two sources: first, those who wished to distribute a formalized preparation of scarlet fever toxin under the name of "Scarlet Fever Toxoid" and, second, from those who wished to distribute scarlet fever toxin under the name of "Scarlet Fever Phage."

Thus far the existence of a scarlet fever toxoid has not been established, and after thorough investigation the Scarlet Fever Committee refused to license manufacture and sale of a substance not known to exist.

The second complaint came from a laboratory which distributed a "phage" for active immunization against scarlet fever. This product was actually an unstandardized preparation of scarlet fever toxin prepared by the customary method. It was not necessary to resort to legal means to stop the distribution of this unstandardized preparation of scarlet fever toxin. It was necessary only to explain the nature of the product, and the manufacturer readily agreed to discontinue its distribution, taking out a license for the manufacture of standardized products.

Thus it will be seen that the complaints as to interference with research have come not from scientists who wished to do actual research but only from persons who desired large scale distribution of materials accompanied by claims for which there was no scientific basis. The advocates of such products have failed to do the fundamental scientific investigation, which should be made, first, to establish the existence of the substance and, second, to determine its efficacy before wide distribution is begun. The Scarlet Fever Committee in administration of the patent has never interfered with research. It has frequently furnished material for scientific experiments and, when indicated, cooperated in the work. It has, on the other hand, refused to license the commercial manufacture or distribution of harmful or ineffective products.

That a patent under which existing, competitive commercial manufacturers are licensed on equal terms affords the best means of obtaining good material is readily shown by comparison of scarlet fever products on the market in this country with those available in countries where we have no patent. Specific, highly potent and accurately standardized scarlet fever toxin and antitoxin are produced only in those countries where the products are protected by a patent. In countries where state serum institutes have a monopoly and competition is lacking, they are decidedly inferior.

We have been asked whether the licensed manufacturers have cooperated with us. We have no reason to believe that manufacturers opposed to patents for the control of quality have given up their traditional hostility toward such patents. On the other hand, commercial manufacturers have been responsible for some of the most important improvements. Their attitude has always been friendly and, in view of the facts that they were working under new conditions, were attempting to produce extremely sensitive substances which could be standardized only on human beings and were fearful of patents for the control of quality, they have given remarkably good cooperation.

COMMENT

CHAIRMAN LEE: While there may have been controversies over the Dick patent, I am sure the Dicks themselves, Dr. George F. and Dr. Gladys H. Dick, are much in financial debt on account of that particular patent. I think that statement can go absolutely unqualified; in no way has the so-called Dick patent redounded in any financial benefit to the Dicks, Dr. George F. or Dr. Gladys H. Dick, in any way, form or fashion.

THE ADMINISTRATION OF MEDICAL PATENTS FOR THE PUBLIC WELFARE

F. LORNE HUTCHISON
Secretary, Insulin Committee, University of Toronto
TORONTO

I am here today neither as an apostle nor as a disciple but simply as one who has had some experience in connection with the administration of medical patents. As executive secretary of the Insulin Committee of the University of Toronto since 1923 I have had duties in behalf of the holders of certain patents, and as comptroller of the Connaught Laboratories of this university since 1925 I have had duties in behalf of these laboratories as licensees under other patents. Hence my acquaintance with the subject of medical patents has been both from the standpoint of licensers and from the standpoint of licensees. What credos have I reached regarding this subject? I propose to answer this question for you not with a view to proselytizing any of you who are either apostles or disciples having a creed differing from mine, and not with a view to converting any of you to my creed, but simply in order that you may all know the position which I take and from which I am speaking to you.

I believe that it would be a misfortune were it not possible to obtain patents relating to medicaments; that in respect of patenting of discoveries and inventions in the field of medicine (or food) there should be legislative restrictions of a sort that would be unnecessary or undesirable in other fields; that it would be desirable if most of the patentable discoveries and inventions related to medicine were to be patented only if otherwise they would be kept secret and would not be fully disclosed by exhibition and publication; that it is very definitely in the public interest for certain discoveries and inventions in the field of medicine to be patented; and I believe that whenever it is in the public interest for a medical patent to be obtained it should be considered as wholly proper for the inventor to apply for the patent irrespective of whether or not he is a member of the medical profession, and that it should be considered as wholly proper for him or for any noncommercial organization, such as a university, to receive the patent and hold or administer it for the public welfare.

Present or future holders of medical patents that are being or could be administered for the public welfare fall into three categories. A common impression to the contrary, commercial manufacturers are not simply birds of prey, and it is by no means impossible or unheard of for manufacturers or others having a profit motive to hold and administer a patent unselfishly. None of them can be expected, however, to administer commercially valuable patents wholly or even primarily for the good of the general public. Some of them are bound to abuse and undoubtedly do abuse their proprietary rights. Obviously any such abuse is particularly deplorable when it affects the question of medicine or food; and it is with this in mind that patents relating to medicines and foods are often the subject of restrictive legislation designed to minimize abuses but retain the uses of such patents. An example of such legislation reads as follows:

> In the case of inventions relating to substances prepared or produced by chemical processes and intended for food or medicine, the specification shall not include claims for the substance itself, except when prepared or produced by the special methods or processes of manufacture described and claimed or by their obvious chemical equivalents. . . .
>
> In the case of any patent for an invention intended for or capable of being used for the preparation or production of food or medicine, the Commissioner shall, unless he sees good reason to the contrary, grant to any person applying for the same, a license limited to the use of the invention for the purposes of the preparation or production of food or medicine but not otherwise; and, in settling the terms of such license and fixing the amount of royalty or other consideration payable, the Commissioner shall have regard to the desirability of making the food or medicine available to the public at the lowest possible price consistent with giving to the inventor due reward for the research leading to the invention.

What I have just read is taken from the Canadian Patent Act and is perhaps quite imperfect, but I feel that something along the lines of this legislation is worthy of consideration for adoption.

Next let us consider for a moment the case of the man who has no profit motive in connection with an invention of his of value in the field of medicine but who finds that it would be definitely in the public interest for the invention to be patented. Rarely would this man have the resources required for the obtaining of a patent and the capacity and facilities necessary to administer the patent in the public welfare. To achieve these ends it is logical for him to turn to some noncommercial organization, existent or specially created, able and willing to assume responsibility for the desired administration of the patent.

Here we come to the third category of holders of medical patents, namely universities and other noncommercial institutions and organizations which have undertaken administration of the patents. It seems to me that features which are outstanding if administration of a medical patent is genuinely for the public welfare are:

1. It was necessary to apply for the patent in order to ensure one or more or all of certain desiderata, some of which involved protection of the public interest and the remainder of which involved appropriate control of practice of the invention to which the patent relates. These desiderata are:

(*a*) That the invention be put into regular practice without being patented by some one other than the actual inventor.

(*b*) That it be made impracticable for exploitation to result from the discovering and patenting of an improvement of the prime invention.

(*c*) That the invention would not fail to be practiced simply because its translation to large scale utilization would require so much expenditure that commercial manufacturers could not reasonably be expected to undertake this without the measure of insurance which a patent would give them.

(*d*) That eminently necessary or desirable control of practice of the invention, not suitably available through already established channels, be provided.

2. If the patent was necessary simply for protection of the public interest, the institution makes, either actually or in effect, a dedication of the patent to the public.

3. If control of practice of the invention is eminently necessary or desirable and is not suitably available through already established channels, the institution arranges for such control.

Control of the practice of an invention covered by a medical patent is clearly a major operation. It may be considered as falling under the headings of licensing, standards, prices, claims and finances. Under these five headings the views which I hold in the matter of administration of medical patents for the public welfare may be summarized as follows:

Licensing.—A comprehensive, appropriate form of license is of prime importance. The making of exclusive licenses, subject to adequate safeguards, has distinct advantages but almost insuperable disadvantages for noncommercial institutions. Sometimes, however, as in the case of the original licenses under insulin patents, force of circumstances leaves absolutely no practicable alternative to the granting of an exclusive license; but it is desirable that the period of exclusive license be limited as much as possible. Usually this can be confined to a year or very little more than a year.

Standards.—In respect of standards, the prime thing is establishment and maintenance of the highest standards of quality, which can usually be done only through regularly subjecting manufacturers' products to laboratory tests carried out as a responsibility of the licensing authority under the patent or patents concerned. In this connection the holder of a medical patent can and should make rulings not only as to what preparations are of quality acceptable for release to the market but also as to what preparations would desirably be withheld from the market irrespective of their quality. Any such ruling would usually be beyond the jurisdiction which it is practicable and desirable for governmental licensing authorities to have. Similarly the holder of a medical patent is in the position of being able to make rulings as to the exact nature and form of preparations that are supplied for clinical trial. Such rulings should certainly be made provided they establish no actual impediment to research and provided they serve the purpose of ensuring as far as possible that the results of clinical trials will be significant.

Prices.—Patentees may lawfully fix prices at which goods manufactured under their patent shall be sold. This being the case, it seems obvious that holders of medical patents have both a right and a duty regarding prices. Desirably these prices should be controlled so that there is no exploitation of patents and so that the manufacturer's returns are sufficient to allow him a profit that is small but sufficient to keep him satisfied to maintain the quality of his product or even to improve this quality through research.

Claims.—The holders of medical patents are in a particularly good position and have a duty to weed out sins both of commission and of omission in connection with advertising and literature issued by licensees and to cooperate with licensees to the end that printed matter relating to licensed products be phrased so as not to be confusing or misleading.

Finances.—If a medical patent is obtained purely for protection of the public interest, the funds required can usually be raised without difficulty, and it seems to me to be desirable that either nothing or merely a nominal fee to cover expenses should be charged for rights under the patent. On the other hand, when there is occasion for the holder of a medical patent to render constant public service in controlling the manufacture and distribution of products, I see no contraindication whatever to the licenser's collection of a small royalty to be used in defraying his expenses and to leave a balance for devotion to purposes of medical research. I feel, however, that whenever possible it is desirable to avoid paying any portion of the royalty or any other like remuneration to the person or persons who filed the original application for the patent concerned.

Attention to the details which I have summarized under five headings requires a definite organization within the institution, or without the institution, corporate or noncorporate. That organization has, of course, a board of direction, but irrespective of whether this consists of a committee or whether its members are called directors or trustees the board of direction should be made up of men of affairs, on the one hand, and men representing the sciences, fundamental and applied, on the other.

The mere creation of a board, a committee, a foundation or a corporation to hold and administer a patent is nowhere nearly enough. There must be full-time activity in connection with administration and control. There must be a staff, there must be facilities designated for dealing with the manifold items requiring the attention of any one who is administering a medical patent for the public welfare. Usually a testing laboratory is required. It is very fortunate also if the holder of the patent conducts even on a small scale the regular production on at least a semicommercial basis of the product or article which is being licensed.

The organization must be so arranged that services can be given to licensees, because the licensee immobilizes a good deal of money represented by stocks awaiting a release on a report from the testing laboratory, and if there is not cooperation with him in that respect there is lack of economy for him and, in the last analysis, the public pays for this.

If a patent is to be administered for the public welfare, the flag at the top of the pole must always be that of the patient. I don't mean for a moment that the interests of those who serve the patient, particularly the physician, nurses, hospitals, druggists, pharmacists, can be or should be disregarded, but if the patent is to be administered for the public welfare it must be the welfare of the patient that rules.

There are pitfalls for any one who attempts to administer a patent for the public welfare. Some years ago the president of a university in this country was wise enough, when asking the president of the University of Toronto about the control of insulin, to make particular inquiries as to pitfalls. He wrote "I would be grateful if you would give me details of the plan and especially advice regarding the pitfalls into which a relationship of this type may lead the university."

In respect of this request I wrote as follows: "You will readily appreciate that by no means all medical discoveries would warrant treatment such as the University of Toronto gave to the discovery of insulin. Tomorrow, at this or some other university, there might be made a discovery more notable than the discovery of insulin without there being any occasion for the university to handle the matter in the way the discovery of insulin was handled.

"Let us suppose, however, that the circumstances pertaining to a medical discovery are such that a university decides to follow a course similar to the one followed by the University of Toronto in respect of insulin. One of its prime and constant cares should then be to guard against leaving itself open in any way to having policies dictated to it, directly or indirectly, by commercial interests represented by licensees or otherwise.

"Another of many things to be guarded against would be the tendency for its control to be extended abroad, beyond the confines of the territory in which it could be of distinct useful service."

Those two pitfalls in particular were pointed out in response to the request made by the president of the university concerned and, unfortunately, the university would appear to have fallen into both of them very definitely.

Now I want to say that, when I mentioned the pitfall of having policies dictated directly or indirectly by commercial interests represented by licensees or otherwise, I was not taking a slap at commercial manufacturers. My experience with commercial manufacturers, in this country at least, is that they are very decent people, by and large; that they compare very favorably indeed in ethics and morals and ability with people in other walks of life. Of course, among them there have been

crooks, but in what profession, what trade, what walk of life are there no reprehensible characters?

I have here a list of commercial manufacturers in alphabetical order—Abbott, Lederle, Lilly, Merck, Parke-Davis, Sharp & Dohme, Squibb, Stearns. These and many others are names which to all of you are by-words. The men in charge of those companies, although of course they must naturally have a profit motive, are big enough and broad enough to realize that it is in their interest to serve the public interest, and they make it their endeavor to do this. A difficulty, however, is that commercial competition is comparable to war, and what commercial manufacturers sometimes feel they have to do and sometimes do as a result of the stress and strain of commercial competition is indeed most unfortunate.

The other pitfall I mentioned, about extending control abroad, beyond the confines of territory in which distinctly useful service can be rendered, was another that I am afraid the university to which I referred did not succeed in avoiding. But the fact remains that I know of no noncommercial licenser, no university, no corporation or foundation which, in its attempt to administer patents for the public welfare, has not made distinct mistakes. I know of not one. A rather unfortunate thing, in my judgment, is that it seems often that a licenser might profit by the experience and mistakes of his fellows who have been licensers before him, and often that is not done, as in the case to which I referred.

DISCUSSION

MR. JOHN UNGER (Medical Society of Pennsylvania), Pittsburgh: Some methods and procedures must be adopted which will safeguard the health of the public and give them as good a preparation as can possibly be maintained. However, there is one portion of these papers on which I am not entirely clear. As I understand it, patents entail research work on the scarlet fever streptococcus, and the literature associated with such research. I fail to understand why it would be against public welfare to have research workers entirely unhampered in their pursuit in this line of investigation or any similar line. I know they have been hampered and I myself have been a victim of such a situation. There is held at present a patent by a certain layman covering the removal of blood from the body, its ultraviolet irradiation and its reinjection into the body. The entire process is covered by the patent. For the past two years I have been working, in an experimental way, on a similar problem. By virtue of the fact that the patent is a broad and inclusive one, I am not permitted to publish the results of my investigation. I have had several conferences with one of the patent owners, and at one time he promised he would give me a letter releasing me from any possible prosecution in case I should publish anything on the subject, but though I presented a letter of request to him his permission has not yet been forthcoming. I think if patent rights cover a field so broad, research work is certain to be hampered.

DR. GREGORY STRAGNELL (Schering Corporation), Bloomfield, N. J.: I believe, basically, the entire patent situation, while it may require clarification in order to iron out certain injustices that may be operating, certain difficulties for the inventor, certain additional safeguards for the public and sufficient leeway for the manufacturer or laboratories, is not nearly as bad as has been made out by some persons. I am not defending the entire situation as it stands. I do believe that the work on insulin, the way it has been handled by the inventors, the cooperation of the very fine firms that have handled it and the benefits that have eventually been given to the public, the quality of its product, its price and all would be difficult to criticize either here or abroad. Of course, abroad they didn't take sufficient safeguards, but I don't believe the situation has been on the whole lamentable even abroad. As a matter of fact, I think if we only had insulin to cite that no one would have cause to complain. I was a bit amazed, if I may be permitted to comment, by the remarks of Mr. Unger. I believe him to be in error. We who hold many patents in many fields have never at any time refused or disallowed any individual work to be done under those patents. There has always been complete freedom of using all the methods or any methods we employ for research work, without any restriction whatever. The only restriction we have ever placed is where the product of such work would be commercially offered; but as far as any research work is concerned, as far as I know and other commercial houses that I can speak for, I know of no such condition prevailing as has been stated.

MR. R. A. NORTON (Calco Chemical Company, Inc.), Bound Brook, N. J.: I should like to make a few remarks on one phase of Dr. Dick's able presentation of the work of the Scarlet Fever Committee, and that is the point she made that there was an objection by the manufacturers with whom her committee came in contact to the use of patents to control quality. I am not in position to answer with regard to manufacturers generally. I am personally acquainted only with the policies of the company for whom I do patent work. I hope Dr. Dick has drawn an incorrect conclusion, because I think that attitude, if it is generally true of the manufacturers, would be an unfortunate one. I can speak for my own company and for my own opinion that we believe one of the functions of a patent dealing with medical treatment, or with substances or drugs which are to be used in it, is the possibility which that patent gives to assure a control of quality, so that inferior material will not be sold by concerns who may be irresponsible and may cause serious damage to patients. I know it is not the opinion of the Calco Chemical Company that patents should not be used for controlling quality. We believe they should. Of course, it is theoretically possible that a system of control of quality may be set up so unreasonable that it makes practical production of a particular drug impossible. There is no remedy or no instrument which cannot be misused, but I think the cases in which that would arise would be in so small a minority as to be unimportant in comparison with the great good that can be effected by the control of quality in things which are dealing with human welfare and human life. As far as the whispering campaign is concerned, I think my company and my own views are that even if Dr. and Mrs. Dick did get some revenue from it, we would be the last to feel that that is a serious reflection. That is something they have to decide on the basis of their own conscience and on the basis of the rules and practice which are laid down by the American Medical Association, with whom they are affiliated. Mr. Hutchison made one statement in his recommendations which I think may be due to a greater familiarity with the Canadian patent act than with the United States patent law. I should like to comment on that as a patent attorney. In his recommendation, he recommended that no medical patent be granted on a substance, that patents be granted only on processes or a particular process of making it. If a patent is to be considered as a good thing for the process in order to control quality, in order to stimulate the production, then it is just as important that there be control of the product, where that product is new, which control is possible under the United States patent practice. If you do not have that control, there is nothing to prevent the development of other processes which may be inferior and which may result in putting on the market material which is inferior and which may have the serious consequences Dr. Dick has brought out.

MR. WILLIAM T. MIDDLEBROOK (University of Minnesota), Minneapolis: As I understood you, Mr. Hutchison, you stated, on the basis of your experience, that no fee should be paid to the inventor. I wonder if you won't elaborate on that just a bit.

DR. J. C. MORRELL (Universal Oil Products Company), Chicago: I was somewhat amazed at Mr. Unger's remark that he couldn't do further research on the subject matter of a patent, and then the next speaker's remarks that they hold no restrictions on further research in respect of patents which his company owns. I think if Mr. Unger would consult an attorney he would find, practically speaking, that the holder of a patent can hold no restrictions. He has the right only to prevent the use of the product or the process or the apparatus of the patent, as claimed, so that research will not in any way be hurt by the issuance of patents. I represent a company

that is a research and patent licensing organization. We have some 1,100 patents. I am interested somewhat in the mechanics of obtaining patents on medicinals or pharmaceuticals for human consumption, and that would also include foods, particularly as it concerns the public. The test of an invention is novelty and also utility, i. e. whether a thing is new and useful. Opposed to the question of whether a thing is useful is the question as to whether a thing may be harmful. Certainly, if a thing is harmful it can't be useful. So the patent examiner has that problem to decide in connection with the issuance of a medical patent. Most of the so-called patent medicines, I dare say, are not patented. They are mixtures, perhaps, of materials which have the same functions in admixture as the individual materials, which functions may be well known, and from that point of view there are certain restrictions in the issuance of patents which are self regulating. I believe that if the question of patents becomes general for the medical profession there might be several precautions set up for the protection of the public. One, for example, is that an inventor should make affidavit, perhaps witnessed and confirmed by competent witnesses, that what he claims is so and that the product of his patent is not harmful. Many patents, as a matter of fact, have claims which cannot be confirmed, certainly in their entirety. Secondly, it might be desirable for a recognized association like the American Medical Association to have an advisory body which would assist the Patent Office in passing on the novelty and utility of the products of medical patents from the aspect of their harmlessness; that is, to certify that they will not be harmful to the public. Thirdly, we may have restrictions such as those set up by the pure food and drug act and also certain controls and restrictions which may be set up by administrative committees selected to protect the public. I believe that the physician is entitled to the benefits of new discoveries and inventions, and he should be rewarded in the same way as any other inventor; that such reward not only stimulates further research, but it puts a premium on the genius who has done something good for humanity and is permitted and helped to go forward and continue to do that good by suitable monetary reward, subject of course to the necessary restrictions for the public benefit.

DR. ESMOND R. LONG (National Research Council), Washington, D. C.: I shall limit my remarks to the actions and policies of the National Research Council. I am afraid you will feel that the council in its consideration of medical patents is much less wise than the groups whose views have been presented to you this morning, because the Division of Medical Sciences of the National Research Council has never been able to agree on a policy and follow it consistently through the years since its organization. The policy originally adopted by the National Research Council following action by its executive board Feb. 13, 1924, was expressed as follows: "Moved, That, in the event patentable discoveries are made in the course of work carried on under the auspices of the National Research Council, it is expected that the Fellows or others, on the approval of the Research Council, which will defray the cost, will apply for patents on such discoveries as should be protected in the interests of the public, and that such patents will be assigned to the National Research Council; and, further, that the National Research Council hereby declares its intention to dedicate to the use of the public, in such manner as the Research Council may deem most effective, the results of such discoveries as are made in the course of investigations conducted under the auspices of the Research Council." In the succeeding fifteen years the Research Council has held to that ideal of dedication to the use of the public. In actual practice, however, patents have been secured by Fellows of the Research Council and investigators working under grants from the Research Council and have been disposed of in various ways, including university administration. In general, I would say that the actions taken by these investigators which were officially approved by the Division of Medical Sciences, but chiefly as a matter of convenience, have not been with the wholehearted endorsement of the division. On Nov. 11, 1933, this extremely brief motion was passed by the Division of Medical Sciences, although not by unanimous vote: "Moved, That the Executive Committee, Division of Medical Sciences, National Research Council, is of the opinion that in general the patenting of biological methods or products, especially as applied to medicine and public health, is detrimental to the best interests of science and the public." I should say, however, that since then a number of patents have been taken out under the auspices of the council, particularly by one group operating under the Division of Medical Sciences, namely the Committee on Drug Addiction. Their problem in general has been simpler, because most of the important new substances discovered have narcotic action, and narcotics are covered by law. I should say first that twelve years after the first formulation of policy by the National Research Council, i. e. in 1936, a restatement of policy was made, reading as follows: "In the event that patentable discoveries are made in the course of work carried on under auspices of the National Research Council by Fellows of the Council, or by collaborators in special research projects sponsored by the Council, or by recipients of grants in aid of research from the Council, it is expected that the discoverer will notify the Council of these results in order that the Council may take such steps as may seem advisable to protect the interests of the public in the matter." In other words, the statement called for individual consideration of each question. It continued: "In view of its responsibilities for the administration of funds of a public trust nature, the National Research Council hereby declares its intention to conserve for the use of the public, without profit to the Council, and in such manner as the Council may deem most effective in each case, the results of such discoveries and inventions as may be made in the course of investigations conducted under the auspices of the Council." By far the largest number of patents taken out under the auspices of the Division of Medical Sciences of the National Research Council have originated in the council's investigation in the field of drug addiction. Numerous substances, both with and without narcotic action, have been discovered by the investigators operating with funds administered by the council in this field. Narcotic drugs naturally called for special consideration. Action was taken in December 1936 by which certain narcotic drugs were transferred to the Secretary of the Treasury, as follows: "Voted, that the Administrative Committee approves the application by Dr. Lyndon F. Small for a patent covering the production of dihydrodesotymorphine-D developed in the course of his investigations carried on under the direction and with the financial support of the Committee on Drug Addiction of the Division of Medical Sciences and the assignment of such patent to the Secretary of the Treasury under terms to be approved by a legal adviser of the National Research Council or counsel of the Treasury, and that the matter be referred to the Council of the National Academy of Sciences for its approval." The course thus approved has been followed in the case of several narcotic drugs discovered by Dr. Small and his colleagues. For non-narcotic drugs in the morphine series, the following mechanism has been adopted and followed up to the present time. It is purely under trial. I am not stating that it will be the policy of the council in the future. I simply leave it with you as a thought and a method which the National Research Council has explored. Action in this field was as follows: "Voted, that the National Research Council recommends to the Council of the National Academy of Sciences that it approve that the patentee of nuclear alkylated, aralkylated and arylated derivatives of the morphine series, developed through investigations supported by the Committee on Drug Addiction of the Division of Medical Sciences, assign his patents to the Research Corporation for the handling of these substances in other countries than the United States; and, further, that as additional patentable substances may be developed in the work of the Committee on Drug Addiction, the committee be authorized to initiate negotiations for transferring to the government of the United States the patents on all those substances which come under the control of the narcotic or other federal laws, and for other substances to initiate negotiations with the Research Corporation or any

other qualified agency looking to the ultimate transfer of the council's patent rights on those substances to the corporation or other agency, subject in each instance to final approval of the National Research Council and the National Academy of Sciences." In brief, the Division of Medical Sciences of the National Research Council has countenanced three procedures: It has approved certain patents dedicated to the public benefit under systems like those discussed today; secondly, on its own initiative it has assigned certain patents to the United States government; finally, it is exploring the possibilities of utilizing a nonprofit organization, the Research Corporation, for certain products developed as a result of research under its auspices.

DR. L. G. MAISON (Gane and Ingram, Inc.), New York: So far, this entire discussion has appeared as a defense mechanism on the part of the scientific medical body developing patents against the attitude of the pharmaceutic manufacturer. Since I am here on behalf of a manufacturer, I should like to hear the other side of the story, learn something of the attitude of the medical profession toward the manufacturer who issues a patent, enforces that patent and derives a high price for the medication covered by that patent. As an example, I mention a patent on one substance which sold for $60 a pound during the life of the patent, but which, after the expiration of the patent, was available in the open market for $2 a pound. I refer to phenobarbital. I should also like to learn something about another phase of patented medical substances; namely, where a university obtains a patent and enforces it primarily for the collection of royalties, although no control of manufacture may be involved with the substance patented. I refer to the copper and iron patent, regarding which Dr. Fishbein commented in the editorial columns of THE JOURNAL to the effect that it was a rather amazing situation for a distinguished university to collect royalties on a patent so contestable from a scientific point of view. Also I should like to have some expression or gain some experience here as to what the manufacturer is to do who develops a new medication, patents it and manufactures it exclusively, and how the medical profession reacts to the price placed on such preparations.

DR. DAVID T. SMITH (Duke University), Durham, N. C.: Dr. Dick mentioned the whispering campaign. I want to mention another phase of the whispering campaign, to the effect that under the rights given by the patent severe restrictions are placed on research in other institutions with regard to streptococcus antitoxin. It is only fair to Dr. Dick that she be allowed to deny this and clear herself before this group.

MR. JOHN UNGER, Pittsburgh: The two gentlemen who have discussed my remarks previously have intimated that patent rights do not include such things as inhibiting one from publishing on research matters, whereas Dr. Dick in her presentation, I believe, told us that patent rights cover literature. The point I want to make is that I myself consulted this man who holds the patent on this procedure, and he advised me I could not publish it without his consent. I have no legal advice, and I am not a legal expert. I do not know how the situation stands.

MR. F. LORNE HUTCHISON, Toronto: In response to Mr. Norton, I assure him that I am more familiar with the United States Patent Act than I would like to be. I wonder if he is familiar with the fact that the United States is one of the few leading countries in the world which do not already have particular restrictions relating to patents that affect medicine or food. Mr. Norton is a patent attorney. I have no doubt that he is for patents. Well, I am too, to a degree. I am for their uses, because I think they have very real good uses. I am very much opposed to their abuses, and I feel that they have sometimes been and are bound sometimes to be abused in connection with things that so intimately affect the public health—medicines and food. Mr. Norton, if you and your confrères don't take some sort of action to evolve reasonable restrictions I would suggest that it won't be long before in the United States there may be no patents relating to medicines. But I do not suggest those sections I read from the Canadian patent act as particularly good. I simply suggested them to you as the sort of thing that might well be considered. Mr. Middlebrook, I think it would not merit the time of this meeting to have a long discussion on the subject of rewards to the noncommercial inventor. I happen to be fundamentally, or I used to be, a biochemist. If I were a practicing biochemist, had a laboratory or an office down the street here, and took out a patent, naturally I would expect to derive profit from it, whether I issued licenses under the patent myself or whether I sold the patent to a commercial manufacturer or licensed a number of commercial manufacturers. But if I am on the staff of a university I am not satisfied that it is desirable, either from the university's point of view or from my point of view, that I get a "cut" on any moneys received by the university in respect of patents on inventions made in the university, with the aid of university facilities and time. A good deal of literature on this particular subject has been published. That is one of the reasons for my thinking that discussion of this subject would not merit the time of this meeting. I read yesterday, as a matter of fact, a considerable number of publications wherein the pros and cons of this very thing are advanced. I can give references to those publications to you or any one else who is interested. There you can seen these pros and cons. Meanwhile all I have to say to you is that I happen to be on the side of those who feel it is undesirable, unless necessary, that a man in a university who applies for a patent gets a "cut" from any proceeds which accrue from the patent.

DR. GLADYS H. DICK, Chicago: Two of those who have spoken have mentioned subjects that concern the Scarlet Fever Committee. One suggested that we might have been in error in concluding that some of the commercial manufacturers are opposed to patents for the control of quality. This was not our conclusion; it was what they told us. In reply to Dr. Smith's question, Dr. Smith must know that important research on all antitoxins, including scarlet fever antitoxin, was carried on in his own university without any interference by the Scarlet Fever Committee. The Scarlet Fever Committee is glad the work was done, since it resulted in improvement of scarlet fever antitoxin. The investigator patented his own work, also without any interference from the Scarlet Fever Committee, and the Lederle Laboratories, a licensee of the Scarlet Fever Committee, is manufacturing under the patent on this improvement.

A MANUFACTURER'S VIEW OF MEDICAL PATENTS IN RELATION TO THE PUBLIC WELFARE

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In summoning a national conference on medical patents, the Board of Trustees of the American Medical Association exemplifies a trend that has become increasingly manifest in recent years. I refer to the tendency of the public, the medical profession and the federal government not merely to hope for improvement of the public health but rather to give the movement direction by critically examining and improving the social instrumentalities involved. As some philosopher once so rightly said, "Progress may need nudging now and then." So, medical patents, which have been, I believe, an instrument of progress, should be examined anew from time to time that we may evaluate their virtues and faults and prescribe effective remedies when indicated to be necessary or desirable.

From the tenor of my invitation I judge that I am expected to consider medical patents in relation to the public welfare from the point of view of the manufacturer. I trust that no one will be disappointed if I say at the outset that to me the manufacturer's point of view does not exist as a wholly detached entity. Like so many of those occupying executive positions in the drug industry, in the course of years, I have acted for long periods in each of a variety of capacities. Some of them have been concurrent. In my case, I have served; among other capacities, as a practicing physician, an administrator of a federal health agency, and a director of biologic-pharmaceutic

research. In consequence, I believe that my outlook, like that of so many of my colleagues, is free from marked bias in favor of the attitude of any one special-interest group. And the opinions I shall express, though I believe them to be sound in the premises, are held with more scientific tentativeness than dogmatic assurance.

As you know, our patent law stems from our constitutional provision empowering Congress "to promote the progress of science and the useful arts by securing for limited times to authors and inventors the exclusive right to their writings and discoveries." In return for the right to exclude all others from the practice of his invention for seventeen years, the patentee gives to the public a full disclosure of the invention. This the public may use gratis after that period has expired. If, on the other hand, an inventor elects to keep his invention secret, he loses his exclusive property in it as soon as it does become known. But secrecy, as long as it is maintained, may not only hamper utilization of the invention but also impede research by others in the process of continued progress.

A "terminological inexactitude" of seeming obscure origin is the so-called patent medicine, applied to a proprietary preparation the formula of which is not revealed. Since "patent" means "open," a disclosure is the chief prerequisite to the issuance of a patent, so that "patent medicine," far from being synonymous with "patented medicine" is a glaring misnomer. A hostile attitude toward medical patents may be traced in the minds of some to this false association of origin. For others, it may proceed from the fact that only a few decades ago a considerable number of our medical patents were of the type of old wives' remedies. I have in mind also the chant of the second witch in Macbeth:

> Fillet of a fenny snake
> In the cauldron boil and bake:
> Eye of newt, and toe of frog,
> Wool of bat, and tongue of dog,
> Adder's fork, and blind worm's sting,
> Lizard's leg, owlet's wing,
> For a charm of powerful trouble
> Like a hell-broth boil and bubble.

Whatever may be the historical associations, today few if any patents are granted on materials of such indefensible types. They are not even to be related to compositions on the same plane of invention as physicians' routine prescriptions. As bearing on present practice, it is to be observed that about half of the preparations listed in the 1938 edition of New and Nonofficial Remedies have been or are covered by patents or pending applications. Instances do occur, however, when the Patent Office examiner is technically obliged to issue a patent on some possibly unworthy subject matter. An example would be the case of a biologic cancer treatment. In such cases, however, the examiner is most likely to be subjected to a severe and most effective barrage of criticism from the medical profession.

Patents were created to promote the public welfare. We may not and should not discount the intellectual pleasure of solving problems and the desire to merit the favorable regard of one's fellows as stimuli in the field of invention. Nor should we overlook the important influence of the prospect of material gain. I do not mean to decry the average human being as mercenary. On the contrary, he would be scarcely normal if he lacked the impulse to procure for himself and his dependents the opportunities, necessities, and even those luxuries requisite to well being, a well rounded life and more than bare security in old age. A patent is such a stimulus to persistent effort and in the long run the public is served through disclosure of the results obtained.

If with respect to inventions generally such motivation is desirable, isn't it apparent how even more essential it is that society should provide at least as great an incentive in connection with inventions of exceptional human value? This is particularly true with those in the field of treating human ailments, alleviating pain and prevention of disease, the toll of which on our national income has at times assumed staggering proportions.

I am one of those many enthusiasts who do not hesitate to assert that our patent system has been an essential factor in transforming our wilderness of only 300 years ago into the world's richest nation, with a standard of living unequaled elsewhere. If it has done so much, how much more may it yet accomplish. I agree that our mineral and agricultural resources under a system of free enterprise had much to do with the extraordinary growth of our industries, but our patent system, with its incentives and rewards, has been a major impelling force.

This assertion finds support in the relatively recent experience of two foreign states. The Netherlands discontinued its patent system in 1869. A great decline in its industrial development followed until 1912, when the patent system was restored. The Soviet Union, though operating on principles diametrically opposed to our individualistic, capitalistic order, is reliably reported to have enacted somewhat recently patent laws that are fundamentally similar to those of the other Western powers. Added significance attaches to these instances when it is considered that in the absence of patent laws in those countries their citizens and the nations themselves would still have had access to all the published inventions of the rest of the world, without granting any compensatory monopoly therefor. Nevertheless, they decided that the advantages of such a situation were not as great as those flowing from patent systems of their own. Let me cite still another corroborating sidelight. Our law imposes no restrictions on medical patents, whereas France will not grant patents on medicines at all, and Great Britain and Germany (and most other European countries) grant medical patents only if limited to the specific processes of manufacture. As a result, the temptation to keep medicines secret should be made greater in those foreign countries than here. This is borne out by the wider use of proprietary medicines in England and France, which I am informed is readily noticeable.

You may inquire whether this need for incentive and material reward applies to the many instances in which the inventor does not himself commercialize the invention but assigns it to a corporation or a university. I think that it does apply, for the reward in such cases is merely transmuted into a form more acceptable to the inventor, usually either as a fixed sum or as a regular salary. The employee basis, perhaps the one that obtains with respect to most medical patents, assures the inventor of a relatively steady income, during fallow as well as productive periods. This is in itself a continuing incentive. It helps to keep the fires of inventive genius burning. Then too, trained scientific investigators are saved the burdens of the problems entailed in commercialization of their inventions, by no means negligible. For want of training and experience in such operations, and lacking the necessary equipment and capital, most inventors would be unlikely to do the work well or efficiently, except at great sacrifice of time and money. They are not diverted from the research for which they are qualified. It seems a fitting division of labor that the inventor should turn the commercialization aspect over (as by assignment) to an organization specializing therein. It is in the public welfare thus to enable university workers, after making inventions, to leave the administration of the patents with its contractual, litigative and general business aspects to commissions, committees or corporations created for the purpose. It has been found that such organizations in turn can make for the fullest distribution of the product while minimizing the heavy cost of performing necessary assays, supervising literature and other control operations, by issuing nonexclusive licenses to a limited number of manufacturers of demonstrated competence and integrity.

Now let me stress a note of warning. An individual who, resolved not to profit by his investigations, publishes a complete account of his work but refrains from patenting it, may fall short of serving the public welfare to the fullest degree. For the Patent Office, having no official knowledge of his priority, may grant to some other person a patent on the same subject matter. As you know, citations of the publication are surmountable by the simple expedient of filing an affidavit

alleging an earlier date, supported by undated evidentiary material. In that event the true inventor's generosity will have been in vain, and not only the public at large but even he (unless he is prepared to enter into costly litigation) may be barred from the practice of the invention. Accordingly, the inventor would be best advised to secure a patent and then, if he prefers, either dedicate it to the public or, more effectively, assign it to some group or institution qualified to promote and administer it.

In our science-conscious civilization, none would be likely to question the desirability of a constant and ample supply of funds for medical research. Necessary funds are not always forthcoming when most needed, if at all, and then only intermittently or meagerly, since they are frequently dependent on the caprice or varying resources of private benefactors. Patents, on the other hand, by laying the foundation for a steady income, enable universities, institutions and individuals to maintain continuing research schedules on a self-supporting basis, free from unfortunate restrictions, however well intended. Some universities do not permit members of their staffs to take out patents. Others dedicate their patents to the public. A third group, whose policy appears most likely to survive, is the one which, through the medium of a committee or special nonprofit corporation, exchanges licenses for royalties, takes from the proceeds so realized a minor portion to reward the inventor and to meet expenses, and devotes the remainder to research. Society reaps the advantage, pays the price and so paves the way for further attainments, which serve it most in the final analysis.

I have already mentioned that mere publication of an invention may not be in the best interests of the public welfare. A related factor is also to be observed. As published, the results of medical research work are frequently not in a condition for immediate utilization. Much developmental work may have to be done, and extensive chemical, pharmacologic and clinical studies may have to be conducted before the efficacy, safety and limitations of the product are so fully determined as to justify its broad distribution and sale. In the face of the expense and precariousness of advancing a desirable product to the commercial stage, and thereafter of promoting it so as to overcome the cautious resistance to any new product, may we not respect the reluctance or refusal of the manufacturer to embark on such a project unless he is protected by patent licenses against unburdened, destructive competition? It follows that, in consequence of failure to patent it, the invention —though ostensibly to be had for the mere taking—may actually never become available to the public at all.

Let me discuss the role of the manufacturer more concretely. In our times the heart of any large drug manufacturing company is its research department. No company can long hold a preeminence in its field or endure without an adequate research department. Such a department requires men and women of outstanding skill and scientific aptitude. Companies search the world over to obtain them. They must be provided with adequate facilities and materials and be given free opportunity to pursue the directions their talents take. Months and even years of apparently fruitless efforts may be consumed before a useful achievement is forthcoming. The expense of this personnel and these operations must come out of either capital or earnings of the manufacturer. The achievement of this combination of personnel, facilities and materials afforded must then be adequately tested and marketed. If successfully marketed, the manufacturer recoups his capital and earnings expended.

Then there is the inventor. How frequently we observe him coming to the manufacturer after enduring countless privations, having exhausted his own savings and frequently those of his friends and others who believe in him, in a futile effort to obtain sufficient understanding of his invention to enable its economical manufacture and distribution. Under such circumstances, manufacturers are constantly lending their resources to inventors, only in the majority of cases to find on their investigation, and after the expenditure of considerable funds, that the product or process is too unpractical to permit its use and distribution. Fortunately, on a sufficient number of occasions the product proves susceptible of development and practical application. Losses are recouped, resources are strengthened and the manufacturer and inventor are enabled to undertake further achievements where otherwise insolvency or strangulation of research would follow. This has been the road of progress. I submit that this road will be forever blocked by any measures which deprive the inventor and the manufacturer of the opportunity to profit from the patent protection now obtainable. Surely that would not be for the public welfare.

Another way in which medical patents operate for the common good is in making possible control with respect to the manner of commercializing the invention. The patentee can contract with reputable and competent organizations and, by suitable provisions in the license, can dictate the conditions of manufacture, distribution and sale so as to forestall misrepresentation and extortion or failure in operation. He can assure a moderate price and high and uniform quality (and thus prevent the marketing of inferior preparations by which the invention might be irreparably discredited). These things he usually does in his own self interest, if for no better reasons.

In this connection it must be remembered that the licenser, especially the university foundation or other quasipublic institution, has a social interest when framing the license provisions. The establishment of fair and reasonable, perhaps even uniform, prices and other controls seem proper subjects for stipulation. Any prohibitions against research looking toward improvement of the product or against the development of other products having the same therapeutic uses seem undesirable as contrary to the public welfare.

It might be possible to regard with comparative equanimity a patentee who refused to place on sale, or to allow any one else to market, a mechanical device covered by his patent; but few of us could or would maintain the same philosophical calm with respect to the similar handling of an invention calculated to save lives or mitigate suffering. In other words, suppression of medical patents would be intolerable. While no instance of such suppression is known to me, I believe we should eliminate any such possibility by the preparation and adoption of legislation drafted to the effect that if the patentee does not within a reasonable time (to be judged by the particular circumstances of the case) himself make or enable others under appropriate license to make the article available to the public in adequate quantity and high quality, others may, for a suitable royalty payable to him, procure the right to do so.

In conclusion it appears appropriate that I review in a few words what seem to me the most important considerations respecting the importance of medical patents, which take into account the interests of the inventor, the public, the medical profession and the manufacturer.

Patents on medical discoveries, operating under our present system, offer far more benefits to the public and the other groups concerned than that of any other system and require their continuance. This has been demonstrated by comparison with conditions in other countries and a consideration of what might occur in this country were there no legal protection of inventors. The truth of this statement is believed to be evident because of the following considerations:

1. The incentive to the inventor is promoted by a reward which can arise only if the invention is useful for the alleviation of pain or the treatment of disease.

2. Obviously then a great social benefit arises if this incentive is preserved.

3. Inventions become increasingly more difficult as medical science increases in perplexity. Consequently, the cost of invention in terms of research has risen enormously and derives much of its support from licenses for the use of the patent. Therefore, continued research is essential to the development of new products of medical usefulness and can be supported only if the previous legalization of the inventor's exclusive right is maintained.

(To be continued)

THE WAGNER HEALTH BILL AND SOME NEW DEVELOPMENTS

Hearings on the Wagner Health Bill, S. 1620, before the subcommittee of the Senate Committee on Education and Labor, were concluded, as far as the present session of Congress is concerned, on July 13. Representatives of osteopathy who appeared before the committee carefully refrained from defining osteopathy or distinguishing it from the practice of medicine. They asked that the bill be amended to entitle a licensed osteopath to render service under the act within the limits of his license. If the bill should be so amended, they said, it would meet with their approval. In view of the impending adjournment of Congress, authorities agree that the bill cannot run the gantlet of subcommittee and committee and be reported to the Senate before the next session of Congress.

Efforts have been made to accomplish some of the objectives of the Wagner Bill through amendments to another bill, H. R. 6635, which now has passed the House and Senate. One amendment proposes to authorize increased appropriations for the Children's Bureau to enable it to enlarge its services for maternal and child health services and for crippled children. Another amendment proposes to increase the appropriation authorized by the Social Security Act for the enlargement of the work of the Public Health Service. A third, proposed by Senator Wagner, was designed to authorize the Social Security Board to set up a federal, nationwide medical service for persons who are unemployed because of their own disabilities.

The Senate Committee on Finance, having under consideration H. R. 6635, reported favorably on the amendments proposing to authorize increased appropriations for the Children's Bureau and for the Public Health Service and these amendments were accepted by the Senate.

Senator Wagner's amendment proposing to authorize the Social Security Board to set up a federal nationwide medical service for the benefit of persons who may be unemployed because of their physical disabilities was not adopted by the Senate Committee on Finance or called up by Senator Wagner when the bill was being debated on the floor of the Senate. Senator Wagner proposed another amendment providing for the creation of an Advisory Council on Disability Insurance, which amendment was accepted by the Senate. The proposed council would be established by two independent Congressional committees, the Committee on Finance of the Senate and the Committee on Ways and Means of the House of Representatives, each "in cooperation with the Social Security Board." The amendment does not limit the membership of the proposed council and the qualifications of its members are not defined. They are to be appointed, however, as representatives of employers, employees and the general public. Provision is not made for the representation of the medical profession on the proposed council. The Senate Committee on Finance and the Committee on Ways and Means of the House of Representatives are to be permitted to make appointments to the Advisory Council on Disability Insurance only "in cooperation with the Social Security Board," and all necessary technical assistance is to be furnished by that board.

Specifically, the proposed council is to study and to report on the establishment of disability benefits under the Social Security Act as amended, with particular reference to the relationship of disability insurance to other forms of social insurance, the scope and coverage of disability insurance, the qualifications necessary to entitle a person to the benefits of disability insurance, the coordination of disability insurance with relief and other programs for alleviating distress among the disabled, rehabilitation services and any other matters that the Social Security Board or the Senate Committee on Finance or the House of Representatives Committee on Ways and Means may deem relevant to the inquiry.

The bill to which these amendments were appended was passed by the Senate July 13. The House of Representatives refused to accept the Senate amendments and the bill was referred to a conference committee, which will endeavor to adjust the differences between the bill as passed by the House and the bill as passed by the Senate. The amendments discussed will come before this committee for adjustment, since they were not in the bill as it passed the House.

GRADUATE MEDICAL EDUCATION

A PROGRESS REPORT OF THE FIELD STUDY ON GRADUATE MEDICAL EDUCATION IN THE UNITED STATES BEING CONDUCTED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

MARYLAND

In the winter of 1886 Dr. W. H. Welch began a series of postgraduate lectures for the physicians of Baltimore. These were given in the laboratory of the department of biology of the Johns Hopkins University during the period in which Johns Hopkins Hospital was under construction. There were nine lectures in the first series devoted to a consideration of microorganisms in disease. The following autumn systematic courses in bacteriology and pathology were offered. These constituted the first formal medical courses given in the university. This program was continued regularly until 1889, when the hospital opened, and from then on clinical subjects were included.

During the year 1889-1890 the instruction was given at the hospital in pathology and bacteriology as well as in medicine, surgery, gynecology, hygiene and psychiatry. Lectures, demonstrations, laboratory courses and bedside and clinical teaching were attempted in the new laboratories, wards, dispensary, amphitheater and private operating rooms of the hospital. Opportunities were afforded only to graduates in medicine for practical clinical instruction, which included daily visits and case studies with Dr. William Osler. Physicians were admitted to all of these courses extending throughout the academic year for a fee of $100. Fees for individual courses were $25.

In 1890 and 1891 similar instruction was offered. Medical graduates who attended only the didactic lectures paid proportionate fees. Those residing in Baltimore were admitted without charge. Actually this was largely undergraduate instruction. The courses continued until 1893, when undergraduate students were first admitted. By 1896-1897, when these students had reached the wards and dispensary of the hospital, there were insufficient faculty and facilities to continue instruction for graduates during the academic year. The courses were then given during May, June and July but soon were discontinued, and, except for sporadic efforts during two or three years after the World War, they have not been resumed.

In 1922 a committee of the faculty of the medical school of Johns Hopkins University considered the advisability of giving refresher courses for medical graduates. The committee was unwilling to engage in such instruction but offered in its place opportunities for qualified physicians to study over six months or longer periods in the various departments of the medical school. Tuition of $50 was charged.

During 1936-1937 the school's committee on postgraduate instruction again considered the policy of the university in connection with graduate teaching in view of the training requirements of the various specialty boards and no change in policy was recommended. Participation by the school in the syphilis program of the United States Public Health Service expanded the interest of the institution in graduate training. Facilities were provided for the instruction of public health personnel with the aid of federal funds and with the aid of a member of the staff of the Rockefeller Foundation. This has brought about a substantial increase in the number of graduate physicians registering as students.

In 1937-1938 twenty-four physicians registered as postgraduate students, and in that year the department of the history of medicine initiated "A Graduate Week in Medical History." The week was planned to bring together persons interested in medical history. Thirty-four registered for this program. During April 1939 a second graduate week in medical history was given.

The School of Hygiene and Public Health of Johns Hopkins University offers unique opportunities to physicians interested in public health to continue their training, especially in syphilis, epidemiology and biometrics. On recommendation of their state health officers, medical graduates may spend an academic year in the school of hygiene, in which half of the course may be elected in the medical school, including clinical training in such subjects as pediatrics and diseases of the heart. The enrolment now averages seventy graduate students each year.

In 1924 the University of Maryland School of Medicine began an eighteen day intensive general course for practicing physicians. Opportunities were afforded those who desired to study the methods of diagnosis and treatment currently used in the university clinics. Registration was limited to twenty. Maryland physicians were charged $25 and out of state physicians $50 for the course.

After 1924 instruction in general medicine and surgery was discontinued and postgraduate seminars in pediatrics were begun. These were designed for physicians in general practice and were arranged so that local physicians might attend only morning sessions and continue their practice in the afternoons. Clinics, bedside rounds, instruction in laboratory methods and clinical pathologic and radiologic conferences were included. A registration fee of $50 was charged.

A postgraduate seminar in diseases of the cardiovascular system has been offered also with instruction in pathology, electrocardiography, roentgenology, clinical studies and therapy. A fee of $100 was charged and enrolment was limited.

A conference on tumors is held at weekly intervals at the University Hospital by members of the Oncological Clinic of the University of Maryland. Patients and pathologic material are shown and radiologic and surgical problems are discussed. These conferences are open to practicing physicians.

In cooperation with the American College of Physicians, the schools of medicine of the University of Maryland and of the Johns Hopkins University provided faculty and facilities for two week postgraduate courses in general medicine and cardiovascular and respiratory diseases during March 1939. Fifty-one physicians registered for the former and sixteen for the latter course. A symposium on a different subject was held each day beginning with the basic sciences and extending into clinical medicine. In the course in cardiovascular and respiratory disease there were greater opportunities for those who attended to examine patients.

Since it is believed that approximately one third of the physicians practicing in Baltimore are connected with the two medical schools, it is apparent that weekly faculty conferences and other school activities provide ample opportunities for continuing medical education. Furthermore, approximately three fourths of the physicians practicing in Maryland are within easy reach of the city and the medical educational facilities it provides.

The Cancer Committee of the Medical and Chirurgical Faculty of the State of Maryland has offered instruction in cancer to any county society in the state on request.

The joint committee on maternal mortality with representatives from the State of Maryland Department of Health, the Baltimore City Medical Society and the two medical schools are analyzing all maternal deaths occurring in Baltimore. This committee meets each month. The meetings are open to practicing physicians. The state society's committee on maternal and child welfare has offered its services to county medical societies of the state to discuss the problems of obstetric and pediatric practice. Dr. Louis H. Douglas is chairman of this committee.

The state department of health conducts case finding clinics in tuberculosis and syphilis and antepartum clinics which are attended in the main by local practicing physicians. Consultants from the health department offer their services for educational programs.

There are 2,821 physicians licensed in the state of Maryland, 1,434 of whom are members of the Medical and Chirurgical Faculty of the State of Maryland.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 2296, proposing to restore certain benefits to World War veterans suffering from paralysis, paresis or blindness, or who are helpless or bedridden, without regard to misconduct, has passed the Senate with amendments and the Senate amendments have been agreed to by the House. H. R. 5452, to provide certain benefits for World War veterans and their dependents, was amended in the Senate so as to provide hospital and domiciliary care, on a parity with other veterans, for retired officers and enlisted men of the Army, Navy and Marine Corps, and the Coast Guard who served during a war period. This amendment has been accepted by the House.

Bills Introduced.—S. J. Res. 169, introduced by Senator Smith, South Carolina, proposes to direct the Commissioner of Public Works, out of any funds available to the Public Works Administration, to pay to the following hospitals the amount specified as federal grants "representing 30 per centum of the cost of the self-liquidating projects heretofore undertaken by such hospitals with money loaned by the Federal Emergency Administration of Public Works": Allegheny General Hospital, Pittsburgh, $540,000; Community Hospital Association, Battle Creek, Mich., $60,000; Frances Mahon Deaconess Hospital, Glasgow, Mont., $37,000; Franklin Square Hospital, Baltimore, $52,000; Greene County General Hospital, Waynesburg, Pa., $21,000; Huron Road Hospital, East Cleveland, Ohio, $101,000; Jewish Memorial Hospital, New York, $105,000; McLeod Infirmary, Florence, S. C., $90,000; Public Health Association, Tulsa, Okla., $4,000; Robert Packer Hospital, Sayre, Pa., $136,000, and Weymouth Hospital, South Weymouth, Mass., $18,000. If the funds available to the Public Works Administration are not sufficient to enable the commissioner to make the payments authorized, there is to be appropriated such sums as may be necessary. H. R. 7165, introduced by Representative Lea, California, proposes to authorize an appropriation of $1,500,000 to construct in northwestern California a 300 bed capacity veterans' hospital for the accommodation of veterans suffering from general medical and surgical disabilities.

DISTRICT OF COLUMBIA

Bills Introduced.—S. 2776, introduced by Senator King, Utah, and H. R. 7095, introduced by Representative Kennedy, Maryland, propose to provide for the reorganization of the local government in the District of Columbia. Among other things, the bills propose to transfer to a Department of Personnel the functions now exercised by the Commission on Licensure to Practice the Healing Art and by such examining boards as exist by appointment of that commission, including the Board of Examiners in the Basic Sciences and the Board of Examiners in Medicine and Osteopathy. S. 2777, introduced by Senator King, Utah, and H. R. 7155, introduced by Representative Randolph, West Virginia, propose to amend the act providing for insanity proceedings in the District of Columbia so as to provide (1) for the transfer from Gallinger Municipal Hospital to Saint Elizabeths Hospital of persons of unsound mind who are so disturbed, excited or violent, or who manifest homicidal or other dangerous tendencies, that they may not be properly cared for at the former hospital; (2) that a judge may commit an insane person to the custody of the Veterans' Administration for care and treatment in a Veterans' Administration facility, if there has been filed a certificate issued by the Administrator of Veterans' Affairs showing that such certain insane person is entitled to such care and treatment and that facilities therefore are available. S. 2779, introduced by Senator King, Utah, proposes to eliminate from the healing arts practice act of the District of Columbia the requirement that examinations be held on the second Monday in January and July of each year and to provide that such examinations may be held at such times as the Commission on Licensure to Practice the Healing Art may by rule or by special order determine.

WOMAN'S AUXILIARY

PRESIDENT'S ADDRESS

At the St. Louis meeting, Mrs. Rollo K. Packard, Chicago, incoming president of the Auxiliary to the American Medical Association, said: "We, interested in medical care, do not believe that radical changes in the methods of rendering medical service have improved such service where they have been tried. We are quite sure that, of all the developments of science, the development of medicine stands out almost alone as the one that has constantly aided mankind. . . . Our chief function is to keep informed of plans, their successes and failures, and to function chiefly in the role of public relations and education, to the end that the public may know of the outstanding accomplishments of the medical profession and science, of the exact facts of our present state of health, of the necessity of preserving the basic principles of our present methods of practice and the importance of the people saving and budgeting as is necessary to meet their medical needs."

Minnesota

The auxiliary to the Hennepin County Medical Society March 10 in Minneapolis was addressed by Dr. Brown of the Child Guidance Clinic of the Minneapolis Public Schools on "Mental Health."

New York

An essay contest for boys and girls, sponsored by the auxiliary to the Medical Society of the County of Jefferson, as its project for the year has as its subject "Highway Hazards." Prizes will be given. The judges are Dr. Harold Gokey, Alexandria Bay, representing the Medical Society of the County of Jefferson; Mr. Lyman L. Goodrich, representing automobile salesmen, and Mr. Alton H. Adams, representing the *Times*.

Dr. Frederick E. Elliott addressed the auxiliary to the Medical Society of the County of Kings in February on medical legislation. Mrs. Dimon Fuchs gave a paper on "The History of Medicine in Brooklyn." The fourth anniversary of the auxiliary was celebrated at a meeting March 14. The speakers were Dr. Adele Streeseman, chairman of the advisory council, and Mrs. John L. Bauer, first president of the Kings County Auxiliary and also first president of the auxiliary to the Medical Society of the State of New York.

Mr. Willard W. Seymour, Syracuse, addressed the auxiliary to the Medical Society of the County of Cayuga in the Auburn City Hospital recently on the blue cross plan for hospital care.

The auxiliary to the Medical Society of the County of Queens met recently. Mr. Dwight Anderson, director, public relations' bureau, Medical Society of the State of New York, explained the difference between the Voluntary Medical Indemnity Expense Insurance and Compulsory Health Insurance. A resolution was passed creating the Carl Boettiger Memorial Fund, named in honor of the late Dr. Boettiger who organized and directed the library of the medical society. The sixth anniversary of the auxiliary to the Medical Society of the County of Queens was celebrated March 17 at the Medical Society Building. At the meeting of the auxiliary March 28 Dr. Bruno Gebhard, technical consultant of the American Museum of Health of the New York World's Fair, told of the Medical Building at the fair and of the exhibits and lectures planned. Mr. G. Starkman, director of exhibits of the New York World's Fair, showed pictures of the many buildings which will be seen at the fair and explained the purpose of each.

The auxiliary to the Medical Society of the County of Rensselaer met at the Troy Hospital recently. Mr. O. T. Anderson, educational director of the community chest campaign, discussed this project. Dr. Joseph Lawrence, executive secretary of the Medical Society of the State of New York, also addressed the auxiliary on the "Legislative Side of Medicine."

The auxiliary to the Medical Society of the County of Schenectady met at Sunnyview Hospital for Crippled Children recently. Miss Laura Lorenson, New York, lecturer on decorative arts, gave a stereopticon lecture on "The Romance of Pottery in Every Time and Every Clime."

MEDICAL ECONOMIC ABSTRACTS

SICKNESS INSURANCE FOR GERMAN MINERS

The number of miners covered by sickness insurance increased 9.37 per cent from 1936 to 1937. Premiums in the German sickness insurance system are a percentage of wages. An increase in wages caused the income of the insurance societies to increase 18.7 per cent and the total income of the insurance carriers increased 15.18 per cent. At the same time the expenditures increased 16.98 per cent, or so much more than the increase in income that the income in 1936 was not sufficient to cover expenditures. Every increase in the number of the insured during 1937 has increased the loss in the insurance system.

The report of the miners' sickness insurance of 1937, which is summarized in the *Deutsches Aerzteblatt* (**69**:415 [June 2] 1939), explains that this condition is caused by the increase in the number of days of sickness, which was 12.8 per member during 1936 and 14.3 in 1937. The days of incapacity for labor in each case of sickness has, however, decreased from 27.6 in 1935 to 26.9 in 1936 and 26.5 in 1937. The expenditure per insured has risen fairly steadily from 101.84 marks ($40.75) in 1934 to 112.34 marks ($45) in 1937. The largest increase has been in the cost of hospital care and cash benefits, as little more has been expended for medical care by insurance physicians. A suggested explanation of the increased illness and consequent additional costs is that employees added in recent years have been unfamiliar with the risks of mining.

The average age of members has steadily increased from 32 years and 11 months in 1927 to 35 years and 8 months in 1937. At the present time the average days of incapacity due to illness annually increases steadily with the age of the employee.

RADIOLOGISTS AND THE WAGNER BILL

Radiologists are especially interested in the feature of the Wagner bill which proposes the "construction of 500 diagnostic centers 'as an initial development' at a cost of $30,000 each. These would not only assist the state cancer hospital in cancer diagnosis and treatment but would also serve 'for diagnosis and therapy which would be beyond the resources that the local physicians of the neighborhood normally would have for equipment in their offices.' Thus provisions are made for about ten centers in each state to serve, presumably without charge and regardless of ability to pay, all citizens whose attending physician desires radiological or pathological procedures in diagnosis."

Mr. Mac F. Cahal, executive secretary of the Inter-Society Committee for Radiology, in the Special Bulletin from which the foregoing statements were quoted, further says:

> Is there any evidence whatever to justify the construction of 500 free diagnostic centers to duplicate existing facilities? There is no way of knowing the exact number of roentgen installations in this country today. We do know, however, that there are more than 2,000 radiological specialists equipped and trained to give diagnostic consultation. We do know that there are more than 6,000 hospitals having roentgen departments. And we do know that 98.5 per cent of the people residing within the United States live within 30 miles of a hospital. . . .
>
> If the Wagner bill becomes a law it will inevitably supplant competent private practitioners with salaried political appointees. Does the record of the federal state offer any indication that this system would result in anything but inferior service to the sick, rich and poor? Although the bill does not provide for compulsory health insurance, it opens, by means of governmental subsidies and consequent government control, an even more direct road to state medicine than would compulsory insurance.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Infantile Paralysis Center for Negroes.—The National Foundation for Infantile Paralysis has granted $161,350 to establish a center for infantile paralysis at Tuskegee Institute, Tuskegee. Of the total, $81,400 will be for construction, $39,950 for equipment and $40,000 for one year's maintenance for the thirty-six beds which the plans provide. Construction will begin without delay, it was announced. It is hoped that the center will provide modern treatment for Negro infantile paralysis victims and serve as a training unit for Negro physicians, nurses and physical therapists. The fifteen bed John A. Anderson Hospital, affiliated with the institute, will be available for use by the center. The institute also plans an educational program in the care and treatment of poliomyelitis. Dr. John W. Chenault, director of orthopedic surgery at Tuskegee, will be in charge of the new center.

ARKANSAS

County Society Sponsors Educational Publicity.—The Johnson County Medical Society is the first county society in the state to introduce a publicity campaign in the county papers, using the prepared weekly advertisements on organized medicine and medical topics which have been favorably commented on in other sections, according to the state medical journal. This material will appear weekly throughout the coming year. The first advertisement, which appeared June 8, was entitled "Is Your Doctor an M.D.?" and stressed the importance of distinguishing between the doctor of medicine and the faddists and cultists who usurp the title of doctor.

CALIFORNIA

Changes in Health Officers.—Dr. Francis H. Gambell, Willows, has been appointed health officer of Glenn County succeeding Dr. Frank M. Lawson. Dr. Cornelius W. Lane, Crescent City, has been named to succeed Dr. Wilson Stegeman as health officer of Del Norte County. Dr. Frank I. O'Neill, Oroville, has resigned as health officer of Butte County.

Fined for False Therapeutic Claims.—W. S. Yeomans was found guilty of false and fraudulent therapeutic claims recently by Judge E. P. Woods, Montebello Township Court, and fined $50. Yeomans, who claimed on the witness stand that he could cure toothaches and grow fingernails and cure cancer and tuberculosis, it was stated, was ordered to cease selling his medicine as a cure for any disease. The medicine was said to be a weak solution of lime water with no curative value.

ILLINOIS

Society News.—At a meeting of the Perry County Medical Society near Pinckneyville June 1 Drs. Oliver Abel Jr. and John W. Thompson, both of St. Louis, discussed arthritis and surgical conditions of the abdomen, respectively. Dr. Thompson also addressed the Jefferson-Hamilton County Medical Society in West Frankfort June 21 and Dr. Andy Hall Jr., St. Louis, spoke on "Transurethral Prostatic Resection." —— The McDonough County Medical Society was addressed at Macomb May 25 by Drs. Paul H. Harmon, Springfield, and Samuel Perry Rogers, Chicago, on "Treatment of Acute and Chronic Osteomyelitis" and "Injuries to Muscles and Tendons" respectively.

Chicago

Special Society Elections.—Dr. Harold K. Gibson was chosen president-elect of the Chicago Gynecological Society at its annual meeting June 16; Dr. Julius E. Lackner was installed as president. Other officers include Drs. Charles E. Galloway, Evanston, vice president; Edward D. Allen, secretary, and George H. Gardner, treasurer.——At the annual meeting of the Chicago Society of Internal Medicine recently Dr. James G. Carr was elected president; Dr. Leroy H. Sloan, vice president, and Dr. Clarence F. G. Brown, secretary-treasurer.—— Dr. Gerard N. Krost was recently elected president of the Chicago Pediatric Society and Dr. George F. Munns, Winnetka, reelected secretary.

Executive Dean Named for University of Illinois.—Dr. Raymond B. Allen, dean of Wayne University College of Medicine, Detroit, has been appointed executive dean of the Chicago colleges of the University of Illinois, effective September 1. This position has been created to coordinate the educational and research activities of the university's medical, dental and pharmacy units. The three colleges in Chicago will continue as separate entities, however. In the new executive position Dr. Allen will be a direct representative of President Arthur Cutts Willard, whose office is on the main campus at Urbana. Dr. Allen graduated at the University of Minnesota Medical School, Minneapolis, in 1928. He served as teaching fellow in anatomy at his alma mater from 1924 to 1927 and assistant surgeon at the Northwest Clinic at Minot, N. D., from 1928 to 1930. He was associate dean in charge of graduate study at Columbia University College of Physicians and Surgeons, New York, from 1934 to 1936, when he was appointed dean of Wayne University College of Medicine.

INDIANA

New Bone and Joint Club.—Dr. Eugene B. Mumford, Indianapolis, has been elected president of the newly organized Bone and Joint Club of Indiana, which held its first annual meeting at the Indianapolis Athletic Club April 26. Dr. Gordon W. Batman, Indianapolis, was chosen vice president and Dr. Charles F. Thompson, Indianapolis, secretary-treasurer. Dr. August F. Knoefel, Terre Haute, conducted a round table discussion on forearm fractures and after the dinner Dr. Walter H. Baker, South Bend, one on injuries to the shoulder joint.

Tuberculosis Survey. — Chest roentgenograms are being taken of the school children under the jurisdiction of the Madison and Huntingburg district health departments. Dr. Warren Palmer Dearing, assistant surgeon, U. S. Public Health Service, is making the survey, which was undertaken to complete a study as to the cause of abnormal prevalence of tuberculosis in Kentucky and Tennessee. According to the state board of health, the tuberculosis death rate in these two states is very high and shades off into all the surrounding states. It has been brought out that this area of high tuberculosis death rate corresponds accurately with the limestone areas. The study in Indiana is to ascertain whether this abnormal prevalence of tuberculosis in limestone areas occurs in Indiana, since Madison is in the limestone region and Huntingburg is not.

IOWA

Spotted Fever.—Eleven cases of Rocky Mountain spotted fever were reported to the state department of health during the first twenty-nine days of June, bringing the total number of cases thus far this year to sixteen including two deaths (THE JOURNAL, June 24, p. 2613). A first case was recently reported from the following seven counties: Appanoose, Clinton, Hamilton, Polk, Wayne, Webster and Wright; the remaining cases occurred in Adams, Jackson, Muscatine and Wapello counties. Three of the patients were apparently benefited by convalescent spotted fever serum.

Society News. — Dr. Julian M. Bruner, Des Moines, addressed the Jasper County Medical Society in Newton May 2 on "The Ligation Treatment of Varicose Veins."——At a meeting of the Lee County Medical Society May 10 in Fort Madison the speakers were Drs. Vernon W. Petersen, Iowa City, on "Surgical Treatment of the Lungs and Pleura"; Alto E. Feller, "Diagnosis and Treatment of Hay Fever and Asthma," and George B. Crow, Burlington, "Heart Disease." ——The Woodbury County Medical Society was addressed in Sioux City May 23 by Dr. Ralph H. Luikart, Omaha, on "Indications for Interference During Labor and the Technic."

LOUISIANA

Dr. Lorio, President of State Medical Society, Indicted.—Dr. Clarence A. Lorio, state senator, president of the Louisiana State Medical Society, physician at Louisiana State University, Baton Rouge, and, according to the New York *Times*, political boss of East Baton Rouge Parish, was indicted by the grand jury in Baton Rouge July 14 for embezzlement. In one indictment against Dr. Lorio it was reported that university material worth $240 was involved. Dr. Lorio was indicted separately also for "receiving and having embezzled goods" in his possession. The grand jury which has been investigating charges of graft at Louisiana State University since the resignation as president of James Monroe Smith, Ph.D., and his flight to Canada, according to the

Times, brought in twenty-eight true bills, twenty-three of which were against Dr. Smith and two against Dr. Lorio, who was said to be a close friend of the late Senator Huey P. Long and who was one of the attending physicians with him when he died. Dr. Lorio was released under $12,500 bond. The *Times* for July 15 reported that Dr. Lorio had been suspended as university physician. Dr. Paul T. Talbot, New Orleans, secretary of the Louisiana State Medical Society, announced that Dr. Lorio had resigned as president of the society. Dr. Lorio graduated at Tulane University of Louisiana School of Medicine in 1918. He served in the U. S. Navy during the World War, coming to Baton Rouge in 1919. He is chief surgeon for the Louisiana State Penitentiary Hospital and a member of the staff of the East Louisiana Hospital for the Insane, Jackson. He is also a member of the advisory council of Louisiana University Medical Center, New Orleans. He served as president of the East Baton Rouge Parish Medical Society in 1928 and later as councilor for the Sixth District Medical Society. It was stated that Dr. Lorio had been receiving more than $10,000 a year as a member of the staffs of the state institutions.

MAINE

Session on Obstetrics and Gynecology.—The New England Obstetrical and Gynecological Society held its spring meeting in Portland May 24. The speakers included Drs. Theodore M. Stevens on "Congenital Deformity"; Ralph L. Reynolds, Waterville, postpartum care; Walter F. W. Hay, "Endometriosis of Vagina"; Carl E. Dunham, "Metastatic Carcinoma of Ovaries, Three Months Postpartum," and Adam P. Leighton, "It Has Happened Here."

MASSACHUSETTS

New Committee on Industrial Health.—The Massachusetts Medical Society recently appointed a committee on industrial health composed of Drs. William Irving Clark, Worcester, chairman; Louis R. Daniels, Watertown, and Noel G. Monroe, Boston.

Society News.—Prof. August Krogh, University of Copenhagen, lectured at Harvard Medical School, Boston, May 11 on "The Regulation of the Circulation in Man as Illustrated by Experiments on Change of Posture."——A symposium on short wave therapy was presented before the New England Society of Physical Medicine May 24 by Drs. Michel Pijoan, Herman A. Osgood, Heinrich G. Brugsch and William D. McFee, Boston.

MICHIGAN

Personal.—Dr. Thomas R. K. Gruber, superintendent of Eloise Hospital, was reelected president of the Health Council of Metropolitan Detroit, newspapers reported.——Dr. Henry Wellington Yates, formerly president of the Wayne County Medical Society, Detroit, has been appointed a member of the city plan commission of Detroit, succeeding Dr. Francis B. Jarzembowski.

Premarital Medical Examination Act Amended.—Couples planning to be married will have thirty days instead of fifteen in which to complete their medical examination requirements before applying for a license to marry in accordance with a recent amendment, effective immediately. The new law also corrects a provision of the 1937 act which worked a hardship on certain persons having so-called "Wassermann-fast" cases of syphilis which would not respond to treatment. Under the amended law, marriage is possible for persons who have syphilis in a noncommunicable stage, provided there is no danger to the health of the marital partner or to the issue of such a marriage. Certificates for this special dispensation will be granted by the state commissioner of health on application by the examining physician. These special certificates will not be public records, according to the state health department.

MISSISSIPPI

Society News.—Orren W. Hyman, Ph.D., dean, University of Tennessee School of Medicine, Memphis, addressed the Delta Medical Society in Greenville April 12 on "What the Present Trend Towards Socialized Medicine Is Going to Do to the General Practitioner."——At a meeting of the Coast Counties Medical Society April 5 Dr. William C. Hannon, Mobile, Ala., spoke on "Chronic Osteomyelitis in Children."

Physician Honored at State Meeting.—Dr. Daniel J. Williams, Gulfport, health officer of Harrison County for twenty-five years and formerly president of the Mississippi State Medical Association, was presented with a silver cup at the recent annual meeting of the association for "outstanding service rendered organized medicine since 1891." Dr. Williams graduated at the Tulane University of Louisiana School of Medicine, New Orleans, in 1890. Recently he was guest of honor at a dinner given by the Gulf Coast Medical Society.

NEBRASKA

Society News.—Dr. Andrew C. Ivy, Chicago, addressed the Omaha-Douglas County Medical Society May 9 on "Review of the Vitamins from the Viewpoint of Therapy"; Dr. John F. Gardiner discussed tuberculosis. Dr. Harold E. Eggers was the speaker May 23 on "Treatment of Carcinoma, Experimental and Clinical Phases."——At a meeting of the Southwestern Nebraska Medical Society in McCook May 25 Omaha physicians presented the following papers: Drs. Herman M. Jahr, "Care of the Newborn"; Lloyd O. Hoffman, "Management of Breech Presentations," and Charles F. Moon, "Normal Delivery or Forceps, Indications and Contraindications."——Dr. Willson B. Moody, Omaha, addressed the Tri-County Medical Society (Dodge, Washington, Burt) at a meeting in Fremont May 29 on coronary disease.——Drs. William Jepson and Ernest A. Jenkinson, Sioux City, Iowa, discussed cancer at a meeting of the Madison Six County Medical Society in Tilden June 20.

NEW JERSEY

Personal.—Dr. Andrew F. McBride, Paterson, celebrated the fiftieth anniversary of his graduation from Columbia University College of Physicians and Surgeons recently. Dr. McBride has been president of the Medical Society of New Jersey, member of the House of Delegates of the American Medical Association and mayor of Paterson. He has also served as state commissioner of labor and has numerous civic and fraternal affiliations.——Dr. Charles Henry Schlichter, Elizabeth, was recently honored at a testimonial dinner in celebration of his sixty-fifth birthday by his colleagues on the staff of the Elizabeth General Hospital. Dr. Schlichter was made a member of the senior staff of the hospital.

NEW YORK

New Head of Grasslands Hospital.—Dr. Edwin L. Harmon, for the past nine years assistant director of the University Hospitals, Cleveland, has been appointed medical director of Grasslands Hospital, Valhalla. He succeeds Dr. Frederick C. Smith, who has been acting director since the resignation of Dr. Claude W. Munger in 1937. Dr. Harmon graduated from Western Reserve University School of Medicine in 1927. He will take charge at Grasslands August 1.

Society News.—Dr. Zacharias Bercovitz, New York, addressed the Utica Academy of Medicine May 18 on "Diagnosis and Treatment of Chronic Ulcerative Colitis."——Dr. Winfield W. Scott, Rochester, addressed the Oswego County Medical Society, Oswego, May 24, on diseases of the prostate, with emphasis on points of interest to the general practitioner.——Dr. Eugene F. Traub, New York, addressed the Putnam County Medical Society in May on "Parasitic Skin Diseases."——Dr. Joseph B. Loder, Rochester, spoke on "Complications of an Emergency Nature in the Practice of Obstetrics" at a meeting of the Niagara County Medical Society May 9 at Lockport.

New York City

Food Poisoning Affects 500 Children.—An outbreak of food poisoning that affected 500 school children of Staten Island was reported June 25 and 26 in the New York *Times*. The source of the outbreak was not definitely determined, but it was suspected that egg salad sandwiches served in the children's lunches might have been the cause. The lunches were prepared in a kitchen at one of the public schools on the island by a group of WPA workers as part of a child nutrition project among children whose parents are on relief rolls. About 400 children were attended in hospitals and the illness was mild, it was said. Several adults who ate some of the sandwiches also became ill.

Central and Neurological Hospital Closed.—The Central and Neurological Hospital on Welfare Island, which has a capacity of 470 beds, ceased to function July 6, when the new Welfare Hospital for Chronic Diseases took over its patients. Most of the old buildings will be demolished, the department of hospitals announces; one or two may be retained to relieve overcrowding in the New York City Cancer Institute. The old

hospital was opened in 1909 with a capacity of 150 beds as an infirmary for the Home for Dependents. It was subsequently enlarged and in 1912 became known by its present name. It has been enlarged and improved from time to time by the addition of x-ray and radiographic units, an occupational therapy annex and reconstruction of the operating room unit.

Personal.—Dr. Philip R. Lehrman has been promoted to be clinical professor of neurology and psychiatry at Columbia University College of Physicians and Surgeons.——Dr. Sigismund S. Goldwater, commissioner of hospitals, received the honorary degree of doctor of public health at the commencement of Cornell University June 7.——Dr. Victor G. Heiser received the honorary degree of doctor of humane letters from Temple University, Philadelphia, at the commencement June 15.——Christian Carl Carstens, Ph.D., executive director of the Child Welfare League of America since 1921, died in New York Hospital July 4 of coronary thrombosis, aged 74. Mr. Carstens was chairman of the section on handicapped children at the White House Conference on Child Health and Protection in 1930.

Welfare Agencies Merge.—The Association for Improving the Condition of the Poor and the Charity Organization Society recently combined as a single agency with the name Community Service Society of New York. Mr. Barklie Henry, president of the first named agency, is president of the new society and Mr. Walter S. Gifford, president of the Charity Organization Society, became chairman of the board of the combined organization. The two agencies had an endowment of $28,000,000 and their property was valued at $1,000,000. Headquarters are at 105 East Twenty-Second Street. Porter R. Lee, director of the New York School of Social Work, an operating division of the Community Service Society, died recently and Walter W. Pettit, a member of the school's staff for many years, has succeeded him. The school was founded in 1898 by the Charity Organization Society.

PENNSYLVANIA

Society News.—Dr. Edwin W. Rodenheiser, Upper Darby, addressed the Delaware County Medical Society, Essington, June 8 on "The Differentiation of Abdominal Conditions in Children."——Dr. John P. Griffith, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, June 8 on acute surgical conditions in the abdomen.

New Hospital Dedicated.—The new building of the Montgomery Hospital, Norristown, a $600,000 structure with a capacity of 134 beds, was opened and dedicated June 8. Funds for the hospital were raised in a community campaign in 1937. Dr. Frank C. Parker, chairman of the medical board, and Mr. A. T. Eastwick, president of the board of directors, were the speakers at the dedication.

Philadelphia

Society News.—Phyllis Blanchard, Ph.D., and Myrtle B. McGraw, Ph.D., addressed the Philadelphia Pediatric Society May 9 on "Modern Interpretation of Intelligence Tests" and "Scope and Limitations of Studies in Infant Behavior to Pediatric Practice" respectively.——At a meeting of the Pathological Society of Philadelphia May 11 the speakers were Drs. Irving J. Wolman on "Idiopathic Hypertrophy of the Heart in Infants"; John Eiman, Abington, Pa., "Steps in the Development of Arteriosclerosis: Preliminary Report," and Herbert Fox, "Tuberculosis and Its Control in Infrahuman Primates: the Experiences of Thirty-Five Years."

Personal.—An oil portrait of Dr. William A. Steel, professor of principles of surgery, Temple University School of Medicine for many years, was presented to the university recently by the classes of 1938 and 1939.——Dr. Solomon Solis-Cohen received the honorary degree of doctor of science (honoris causa) at the annual commencement of the Philadelphia College of Pharmacy and Science June 7.——Dr. Winifred Bayard Stewart, assistant clinical professor of neurology, Woman's Medical College of Pennsylvania, was recently made clinical professor.——Dr. Lewis C. Scheffey has been appointed clinical professor of gynecology at Jefferson Medical College.

New Director of Wistar Institute.—Edmond J. Farris, Ph.D., associate in anatomy in charge of operations at the Wistar Institute of Anatomy and Biology, has been named executive director. He succeeds Dr. Milton Jay Greenman, who died April 7, 1937. Dr. Farris, who is 32 years old, taught anatomy at the University of Buffalo and the Medical College of South Carolina before joining the institute staff three years ago, according to a newspaper account. Dr. Esmond R. Long, director of the Henry Phipps Institute, University of Pennsylvania, was elected president of the Wistar Institute; Dr. Alfred Newton Richards, recently chosen to succeed Dr. Alfred Stengel as vice president in charge of medical affairs at the University of Pennsylvania, and William H. DuBarry, assistant to the president of the university, were made members of the board of managers.

TENNESSEE

Regional Meeting.—Dr. Jesse P. Baird, Dyersburg, was elected president of the West Tennessee Medical and Surgical Association at its forty-eighth annual meeting in Huntingdon May 25. Among the speakers were Drs. Samuel T. Parker, Jackson, on "Conservative Treatment of Sinus Diseases"; John Jackson, Dyer, "Home Treatment of Pulmonary Tuberculosis"; James S. Speed, Memphis, "Open Reduction and Internal Fixation of Selected Fracture Cases," and John Owsley Manier, Nashville, "Sulfapyridine in Pneumonia."

Graduate Course at Meharry College.—The second annual graduate course for physicians was held at Meharry Medical College, Nashville, June 5-17. Lectures, clinics and demonstrations were conducted by the staff during the day and at several evening sessions. The following, all of Nashville, were guest speakers at some of the evening sessions:

Dr. Waller S. Leathers, dean, Vanderbilt University School of Medicine.
Dr. Hugh J. Morgan, professor of medicine at Vanderbilt.
Dr. William R. Cate, associate professor of clinical medicine, Vanderbilt.
Dr. John B. Youmans, associate professor of medicine and director of postgraduate instruction, Vanderbilt.
Dr. Sol L. Lowenstein, assistant in clinical pediatrics, Vanderbilt.
Walter B. McFall, D.D.S., vice president, Southern Dental Association.

At the college commencement June 1 John Ellis Turner, LL.D., president of the Lewiston State Normal School, Lewiston, Idaho, was the speaker, on "What the Community Expects of the Medical Profession." Dr. Turner is the father of Dr. Edward L. Turner, president of the college. Dr. John W. Anderson, Dallas, Texas, a graduate of the class of 1885, was the speaker for an alumni and class night program May 31. There were thirty graduates in medicine. James Robert Gladden won the Charles Nelson Medal for scholarship.

TEXAS

Special Society Elections.—The Texas Allergy Association was organized during the recent annual meeting of the State Medical Association of Texas in San Antonio with Dr. James Harvey Black, Dallas, as president and Dr. Boen Swinny, San Antonio, secretary. At the annual meeting of the Texas Railway and Traumatic Surgical Association Dr. George V. Brindley, Temple, was elected president. Dr. Talbot A. Tumbleson, Beaumont, was elected president of the Texas Pediatric Society. Dr. Charles W. Castner, Austin, was made president of the Texas Neurological Society and Dr. Wilmer L. Allison, Fort Worth, was reelected secretary. The Texas Dermatological Society elected Dr. Leslie M. Smith, El Paso, president, and reelected Dr. Duncan O. Poth, San Antonio, secretary. Dr. Curtice Rosser, Dallas, was elected president of the Texas Society of Gastro-Enterologists and Proctologists.

VIRGINIA

Grants for Research.—The John and Mary R. Markle Foundation, New York, has made a grant of $3,000 to the Medical College of Virginia, Richmond, for research in biochemistry under the direction of J. C. Forbes, Ph.D., associate professor of biochemistry. The Dazian Foundation also made a grant of $700 for research in preventive medicine.

Dean Appointed at University.—Harvey E. Jordan, Ph.D., professor of histology and embryology and assistant dean of the department of medicine, University of Virginia, Charlottesville, has been appointed dean to succeed the late Dr. James Carroll Flippin. Dr. Jordan, a native of Pennsylvania, graduated from Lehigh University in 1903 and took his doctorate at Princeton in 1907. He went to the University of Virginia as adjunct professor of anatomy in 1907, became associate professor in 1908 and professor of histology and embryology in 1911. He has been assistant dean since 1928.

WASHINGTON

Society News.—Drs. Frank R. Maddison and Carroll C. Carlson addressed the Pierce County Medical Society, Tacoma, recently on "The Normal and Pathologic Physiology of the Biliary Tract" and "Objectives and Methods of Psychotherapy in Patients Without Psychosis" respectively.——Dr. Warren C. Hunter, Portland, Ore., addressed the Cowlitz County Medical Society in Longview recently on "Thrombosis and Pulmonary Emboli."——Drs. Laurence Selling and Alfred Gurney Kimberley, Portland, Ore., addressed a recent meeting of the Walla Walla Valley Medical Society in Walla Walla on herniation of the nucleus pulposus and hypertrophy of the ligamentum flavum and other causes of low back pain.

GENERAL

Women's Clubs Sponsor Home Safety Program.—The General Federation of Women's Clubs is beginning a home safety program to reduce the number of deaths and injuries caused by fires and accidents in homes. A home safety division has been organized by Dr. Josephine L. Peirce, Lima, Ohio, who is chairman of the federation's department of the American home. Mrs. Chester E. Edwards, Grand Rapids, Mich., is chairman of the new division. Two separate programs, one on fire protection and the other on the prevention of falls and other home accidents, will be offered to the 14,500 member clubs in the federation.

Examining Board to Close Founders' Group.—At the annual meeting of the American Board of Surgery held recently in New York, it was decided that the founders' group will be open to eligible candidates until Jan. 1, 1940. In order to be eligible, candidates must have limited their work strictly to surgery for at least fifteen years prior to Jan. 1, 1937, the date of the board's organization. The office of the secretary, Dr. John Stewart Rodman, 225 South Fifteenth Street, Philadelphia, will forward necessary information on request. Any candidate now desiring qualification in the founders' group must make application prior to January 1.

Special Society Elections.—Dr. Martin S. Kleckner, Allentown, Pa., was elected president of the American Proctologic Society at the annual meeting in Brooklyn, June 25-28. Dr. A. W. Martin Marino, Brooklyn, was made vice president and Dr. Curtice Rosser, Dallas, Texas, reelected secretary.—— Dr. Frank C. Knowles, Philadelphia, was elected president of the American Dermatological Association at the annual meeting in Montebello, Que., May 31-June 3. Dr. Frederick D. Weidman, Philadelphia, is secretary. The next meeting will be in 1941.——Dr. William W. Hutchinson, Los Angeles, was named president-elect of the Associated Anesthetists of the United States and Canada at the recent annual meeting in St. Louis. Dr. Hugh A. Cunningham, Milwaukee, was made president-elect of the Mid-Western Association of Anesthetists and Dr. Richard Douglas Sanders, Louisville, Ky., of the Southern Association of Anesthetists.

Advisory Council on Medical Education Organized.—Announcement is made of the formation of the Advisory Council on Medical Education at a meeting in Chicago June 24. The purpose of the new council was stated to be: "to correlate the efforts of the universities, medical schools, hospitals, licensing bodies, public health associations and boards of specialists." The organizations represented at the meeting were: Association of American Medical Colleges, American Hospital Association, Catholic Hospital Association, Federation of State Medical Boards of the United States, Advisory Board for Medical Specialties, National Board of Medical Examiners, American College of Physicians, American College of Surgeons, Association of American Universities, American Association for the Advancement of Science (Division of Medical Sciences) and the American Public Health Association. The American Protestant Hospital Association and the Association of American Colleges were elected to membership. Dr. Willard C. Rappleye, dean, Columbia University College of Physicians and Surgeons, New York, was elected president; Dr. Maurice H. Rees, dean, University of Colorado School of Medicine, Denver, vice president, and Dr. Robin C. Buerki, Chicago, director of study of the Commission on Graduate Medical Education, secretary-treasurer. The executive committee consists of the officers and the following: Drs. Anton J. Carlson, Chicago; Harold L. Rypins, Albany, N. Y.; Hugh J. Morgan, Nashville, Tenn., and Arthur W. Allen, Boston.

Changes in Status of Licensure.—The Alabama State Board of Medical Examiners reports the following action:

Dr. Abijah Clements Fields, Birmingham, license revoked Dec. 23, 1938, because of habitual drunkenness.

The California State Board of Medical Examiners reports the following licenses restored at its meeting in February:

Dr. Mahlon C. Cooley, Los Angeles.
Dr. Antonio Lopez de Castillo, Los Angeles.
Dr. William B. Humphrey, Los Angeles.
Dr. Paul F. Eid, San Francisco.
Dr. Louis Kameny, Oakland.
Dr. Samuel C. Long, Bakersfield.
Dr. William R. McDannell, Los Angeles.
Dr. Guy O. McKeehan, Los Angeles.
Dr. William F. Meyer, San Diego.
Dr. Alfred H. St. John, Los Angeles.
Dr. Arthur M. Tweedie, Los Angeles.

At the same meeting the board imposed the following penalties:

Dr. Boyajian B. Armen, Fresno, license revoked, based on narcotic conviction.

Dr. Winfield L. Bartow, placed on probation for five years, having been found guilty of using a fictitious name.

Dr. Arthur Bowen, Los Angeles, placed on probation for three years without narcotic privileges or possession, having been found guilty of prescribing for a known addict.

Dr. Harry W. Boyd, Los Angeles, license revoked for aiding and abetting and use of a fictitious name, both in connection with the so-called Samaritan Treatment for Alcoholism, Los Angeles branch.

Dr. Edward J. Buckley, San Francisco, placed on probation for five years provided that he cease practice from March 1 to July 1, 1939, having been charged with aiding and abetting an unlicensed practitioner, namely William Van Buren.

Dr. Claire W. Fulton, Los Angeles, placed on probation for five years for using a fictitious name.

The Illinois State Department of Registration and Education announces the following:

Dr. Leo Ginsburg, formerly of Chicago, license revoked April 22 for his conviction of violation of the Harrison Narcotic Act.

Dr. Floyd J. Kesling, formerly of Peoria, license revoked April 18 for his conviction of violation of the Harrison Narcotic Act.

The New York State Board of Medical Examiners has recently reported the following action:

Dr. Peter Kleinkopf, New York, license reinstated March 2; it was suspended June 17, 1938.

Dr. William Irving Jablon, formerly of Richmond Hill, N. Y., license revoked Dec. 18, 1938.

Dr. John Vincent Grieco, New York, license suspended January 27 for fraud and deceit in the practice of medicine and for having aided and abetted an illegal practitioner.

CORRECTION

Standardization of Hemoglobinometer.—In an article by Dr. Royall M. Calder entitled "Blood Studies in Brucellosis" in THE JOURNAL, May 13, appears the statement that the Sahli hemometer had been standardized by the National Bureau of Standards. We are informed that this is an error and that the National Bureau has never undertaken the standardization of Sahli instruments. Dr. Calder says, however, "The accuracy of our observations is not involved, since our instruments were standardized by reliable chemists in one of the medical schools according to the method of Van Slyke."

Government Services

Wellcome Prize Awarded

Col. Albert G. Love, U. S. Army Medical Corps, received the Wellcome Prize of the Association of Military Surgeons of the United States at the recent meeting of the association in Washington, D. C., in conjunction with the Tenth International Congress of Military Medicine and Pharmacy. The award of $500 went to Colonel Love for a paper presented before the congress on "Probable Casualties in War and Methods of Calculation."

Dr. Reichard New Medical Officer at Narcotic Farm

Dr. John D. Reichard, head of the neuropsychiatric service at the U. S. Marine Hospital, Ellis Island, New York, has been appointed medical officer in charge of the U. S. Narcotic Farm at Lexington, Ky. He succeeds Dr. Walter L. Treadway, who has been assigned to the University of California Medical School, San Francisco, to direct a survey of the care of mental patients in the state. Dr. Seymour D. Vestermark, associate staff member in charge of the diagnostic clinic of the field studies in mental hygiene, U. S. Public Health Service, will succeed Dr. Reichard at Ellis Island.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 1, 1939.

Cancer Research

Speaking at the opening of the new laboratories of the Imperial Cancer Research Fund, Sir Frederick Gowland Hopkins, biochemist, said that progress toward understanding the nature of cancer was increasing remarkably fast. It was most unlikely that a complete mastery of cancer would arrive until a fuller knowledge of its intimate nature as a phenomenon of uncontrolled growth was reached. Morphologic studies had played a considerable part in cancer research. They yielded indispensable information but could throw little light on the underlying phenomenon of morbid growth. In a great number of cases the initial influence of an external agent which might cause normal cells to become cancerous was now recognized. When this had acted for a sufficient time—fortunately it was a very long time—cells might be led to grow pathologically. An example was long contact with certain chemical substances, as in the occupational cancers. Such action was exerted most readily on the skin and superficial parts, where the effect was easy to observe. But it was quite possible that provocative factors, doubtless differing in kind, were concerned elsewhere in the body. We were apt to speak of this action as prolonged "irritation"—a word with vague meanings. We had to learn why only in certain circumstances irritation became a stimulant to growth. If constitutional changes must exist before growth could begin, we should look on them as links in the chain of causation. Did external factors supply only an initial impulse to growth, which, once started, continued without their continued influence? This must be true of such factors as chemical or mechanical irritation and radiation. On the other hand, the continued presence of an agent such as a virus might be necessary for the continuance of growth. We had long known that tar could produce cancer, but we now knew that certain specific substances in it were alone responsible. Interest in these was increased by the fact that they were akin to substances natural to the body, for instance to the sex hormones. How far a virus was a necessary factor in cancer was not settled, but it certainly played a part in the general field of morbid growth. Cancer research was going deeper into the nature of the phenomenon and yielding results of unforeseen promise.

At the first annual meeting of the Faculty of Radiologists (formed by amalgamation of the British Association of Radiologists and the Society of Radiotherapists) the "Cancer Problem" was discussed. Prof. Henry Cohen said that the present treatment of cancer was essentially anatomic. The aim of the surgeon was to excise and radiotherapy was similarly directed against local sites. But therapy in general aimed at restoring disturbed functions to normal and eradicating or nullifying causative factors. Certain observations on the cancer cell, notably its capacity to derive energy from converting dextrose into lactic acid, and occurrence of dextrorotatory amino acids in the products of its protein hydrolysis, seemed to be significant, but no therapeutic measures had been based on them.

Dr. J. R. Paterson said that surgery and radiotherapy were the only effective methods of treating malignant disease. Radiotherapy might be curative or palliative. Only cases diagnosable in the early stage were curable and there were only four curable types, carcinoma of the breast, the mouth and lip, the skin and the uterus. The first was best dealt with surgically and the other three were best handled at first by radiotherapy, provided it was radical. Though cancer of the larynx and pharynx could not be classed as curable by radiotherapy, cures were exceptionally obtained.

The Law on Abortion

A demand has been made by a section of the medical profession for amendment of the law on abortion. A committee appointed by the government to inquire into the subject has presented its report. It recommends that the law should be so clarified as to make it plain that the induction of abortion is legal when carried out to save the life of the woman or to prevent serious impairment of her health. But it expresses strong opposition on ethical, social and medical grounds to any broad relaxation of the law. The committee would have welcomed the legalization of the termination of pregnancies resulting from rape but has been unable to devise a scheme to meet the difficulties. Apart from this, it does not consider that any nonmedical grounds should be a legal justification for the operation. Subject to reservations by two members, the committee recommends that therapeutic abortion should be compulsorily notifiable by the operator to the health officer. The object is to prevent abuse of the law, if clarified as suggested. The majority of the committee was not in favor of compulsory notification of other abortions, but a minority was in favor of this for statistical and research purposes.

Further control of the sale of drugs reputed to have abortifacient properties is recommended. Legislation should be introduced to suppress the advertisement of "female pills" and similar preparations. The majority of the committee would not recommend that the public health services should be used for the unrestricted dissemination of birth control advice but felt that more should be done to give contraceptive advice to married women whose health would be adversely affected by pregnancy and that this should not be limited by too narrow an interpretation of medical grounds. Two members held that advice should be given on economic grounds. It is estimated that the annual number of abortions in England and Wales is between 110,000 and 150,000, of which perhaps 40 per cent are criminal.

Restriction of Admission of Alien Physicians Into Australia

The General Medical Council of the United Kingdom has protested to the Victorian Medical Board and to Melbourne University against Victoria's refusal to register alien physicians who, after passing a short university course in the United Kingdom, are registered but not permitted to reside in the United Kingdom and who then seek registration in Victoria, under their qualification in the United Kingdom. The council points out that the effect of amending the Victoria medical act passed last December is materially to restrict the privileges extended to United Kingdom physicians. The present method of registration in the United Kingdom is designed not to make it easier for foreign graduates to obtain registrable qualifications but to curtail their rights to be freely admitted. Their number is restricted to seven each year. The council's power to recognize medical diplomas granted in Victoria depends on the maintenance by Victoria of the privilege granted to physicians registered in the United Kingdom to practice in Victoria. The Victorian Medical Board and the university are considering the situation. The abolition of reciprocity would handicap Victorian physicians who wish to go to the United Kingdom for postgraduate study. About eighty go each year, and if reciprocity should be withdrawn they could not practice or take up an appointment while in England. The Victorian amending act that has been referred to allowed only those physicians to register who had studied at least five years in Victoria or in a country recognizing Victorian qualifications. All foreigners except those from Italy, with which Victoria has established reciprocity, are excluded unless their countries reciprocate. Similar legislation is already in force in Western Australia and Tasmania.

AUSTRALIA

(From Our Regular Correspondent)

May 30, 1939.

The Making of Medical Men

Delivering the Bancroft oration in Brisbane last week, on the subject "The Making of Medical Men," Sir Alan Newton, F.R.C.S. (England), vice president and censor in chief of the Royal Australian College of Surgeons and senior surgeon at the Royal Melbourne Hospital, expressed some criticism of our system of medical education. The needs of the general practitioner, he said, were paramount in medical education and the university course in medicine should be designed primarily to fit students for general practice. Over the past ten to fifteen years there has been a tendency to overcrowd the curriculum, and the faculty of medicine in most universities had become unwieldy. To remedy this he proposed that first year subjects be delegated to schools and taught with English and history to form a cultural background; that biology should also be taught in schools, with greater importance attached to biologic principles than to structural detail; that botany be eliminated, as pharmaceutic preparations are now largely standardized preparations and the original material rarely used; that psychology, radiologic diagnosis and pharmacology might also be omitted (the last being merged into therapeutics); that lectures on anesthesia be replaced by demonstrations, and that instruction in the physiology of the special senses be reduced. He suggested that a study of the minute anatomy of the nervous system was unnecessary and that emphasis should be laid on a knowledge of the anatomic relations of structures. Special subjects should then be taught as postgraduate instruction.

The general practitioner required a thorough knowledge of general pathology but only a limited scope of special pathology: he need not be a biochemist, he need not be an x-ray specialist; but obstetrics was most important for him. There was a deep need for a medicosocial clinic and provision for every student to visit the homes of patients in order that he might understand something of their environment and its relation to their physical condition. Furthermore, wise general practitioners were needed to teach the art as well as the science of medicine. Sir Alan suggested as an expedient the eliminaiton of the unfit after the first year's work at the university. In this way some control could be exercised over the number and the intellectual standard of those entering the medical profession.

Refugee Doctors for Rural Areas

There is under consideration in several Australian states legislation proposing a system of regional registration for refugee doctors who have the necessary qualifications for general practice in an Australian community. This regional registration will permit a foreigner to practice only in a specified area. It is proposed that certificates be issued for twelve months, subject to renewal at the end of that time. After five years of regional practice a foreign doctor would be entitled to seek registration among the general body of medical practitioners in the state.

In all Australian states, refugee doctors, even though their qualification and experience are beyond all reasonable doubt, are debarred from immediate registration as medical practitioners. Beyond making doubly sure that a foreign doctor is fitted to practice his profession in Australia, these restrictions are designed to protect those already in practice from undesirable competition and also to safeguard the prospects of those younger men and women who are now qualifying for the practice of medicine. At the same time it is undesirable that Australia should reject the medical knowledge, skill and experience that are being brought into this country by some refugees from Europe. A compromise would be achieved if refugee doctors were given opportunities to practice in country districts where medical service is now lacking. There is, however, another aspect to the question, in that if the difficulty of obtaining medical practitioners for country areas is caused not so much by an actual shortage of doctors as by inadequate remuneration and other considerations for medical services required in country hospital districts, then such appointments are as little likely to attract refugee doctors as Australian doctors.

The attitude of the British Medical Association toward the scheme is definite—that the proposed subsidy of £500 per annum is quite insufficient for any practitioner, whether of foreign or of British training, and that it should be increased to £1,000. If this should be done, the branch feels confident that there would be a good supply of British practitioners for the districts in question. Should no local graduates be available for the subsidized areas at such a salary, the branch has no objection to foreign graduates filling the positions temporarily. However, the number of medical students close to graduation in Australia is greater now than it has been for some years, and it is therefore becoming increasingly difficult for local graduates to be absorbed in remunerative practice.

BERLIN

(From Our Regular Correspondent)

June 8, 1939.

The New Bureau of Hygiene in Munich

According to legal regulations, only the state may establish bureaus of hygiene, but the city of Munich was granted permission to build a municipal bureau of hygiene. Munich has distinguished itself as an abode of municipal hygiene since the days of its great hygienist Pettenkofer, and this circumstance favored this special permission. Hygiene work formerly performed by the state has been handed over to the city of Munich. The bureau of hygiene has been established in a building that used to be a trade union building before the national socialist seizure of power. The charitable organizations and societies dedicated to tuberculosis and so on have dissolved their organizations and transferred their equipment to the new bureau of hygiene. The bureau is entrusted with setting up a card index system for the total population of Munich, on the basis of racial and inherited biologic characteristics. An x-ray card index system is provided for special vocations. Thirty-nine stations for advising mothers have been distributed over the city, equipped with thirty-four specialists; these posts examined 62,000 children in 1938. A mother's milk collecting station, furnished with the latest precautionary devices, provides 7 hectoliters of milk monthly for suckling babies having no inherited ailments, whose mothers cannot feed them as required. The personnel of this bureau, which consisted of eight persons in 1933, consists of 249 persons at present; this number includes of course numerous posts that formerly functioned independently.

Syphilis and the Issuing of Marriage Licenses

Dr. Spiethoff, professor of dermatology and syphilology at the University of Leipzig and president of the German antisyphilis society, expressed himself recently with regard to his specialty. The commentary to the German antisyphilis law reads: "Acquired syphilis generally is not considered infectious any longer, if four years has elapsed since the infection and if for two years at least after sufficiently intense treatment no symptoms have appeared. On the basis of scientific experience a shorter time may be set." Spiethoff's point of view is that a hindrance to a marriage is to be assumed only if the probability of transmission is so great that the danger of infection outweighs the fundamental desire for many and early marriages and every other social consideration. The value of the periods of time mentioned (four and two years) is to be computed differently. The lapse of a two year period of observation that shows no infection after the completion of a sufficiently intense

treatment is sufficient to negate the danger of infection. Accordingly, it is not necessary that four years should intervene from the time of infection. Two years of observation based on satisfactory treatment and with no negative symptoms always eliminates the fear of further infection. On the other hand, during the lapse of a four year period since the infection, defects in the results of the treatment (positive reaction, but with no clinically persisting symptoms) and defects in the treatment itself can be corrected. This correction without limitation applies only to the infection resulting from sexual intercourse, not to danger of infection through the offspring; that is, it has full application only to men, not to women. Even after ten, fifteen or more years after infection a pregnant woman who is syphilitic can infect her child. A treatment that is not thoroughly carried out does not protect the children against syphilis. Only a sufficiently intense treatment of the mother offers a real protection against congenital syphilis. However, if this treatment is defective, a four year period of time cannot correct it.

Streptococci

A recent session of the Medizinische Gesellschaft of Berlin was devoted to a discussion on streptococci. Pesch spoke on the variability and pathogenic significance of streptococci. The main difficulty in the way of investigation is caused by the variability of these bacteria. A classification on the basis of length of chains or microchemical behavior cannot be maintained on account of the change of these properties on different nutrient mediums. The best division still is the one based on behavior on blood agar; thus (1) hemolytic, (2) green-producing, (3) streptococci which do not change blood agar, (4) anaerobic streptococci and (5) enterococci. Serologically and on the basis of antigen analyses, American investigators found twenty-seven different types of streptococci. It is possible to separate human and animal pathogenic streptococci by means of the fibrinolysis test, a good standard for measuring the efficacy of streptococcus serums. Three of the toxins formed by streptococci are definitely known at present: hemolysin, an organotrope necrotizing toxin, and the Dick toxin of scarlet fever. It has been found possible to transform green-producing into hemolytic streptococci in dental granulomas by means of short wave treatment.

Professor Bessau, pediatrician, discussed next the significance of streptococci in pediatrics. Streptococcic sepsis in the newborn and prematurely born is especially dangerous. The contents of pemphigus bullae in the newborn contain nearly pure cultures of streptococci. The frequent occurrence of erysipelas of the newborn is caused mostly by streptococcic sore throat of the nursing persons. Scarlatina is a streptococcic disease. The gate of entrance is always the sore throat except in wound scarlatina. The exanthem is caused by the Dick toxin. Antitoxic serum does not protect prophylactically from scarlatina. It influences septic scarlatina only in large quantities and only in case it was obtained from human beings. Bessau pointed out furthermore that nephrosis in children is probably a pneumostreptococcic disease, especially since the children die of sepsis or pneumococcic or streptococcic peritonitis mostly.

Professor Lerche spoke on the transmissibility of animal streptococci to man. He explained that in America numerous attacks of epidemic sore throat occurred from Streptococcus epidemicus seu pyogenes, attacks causally connected with the drinking of milk; according to more recent investigations, the scarlatina streptococcus is involved mostly; the organisms are carried as a rule by diseased milkers to the udder of the cow and the admixing to milk occurs from there. In case streptococci are artificially added to milk, they increase their numbers only with difficulty. In Germany no attacks of epidemic sore throat caused by cows with mastitis have been observed, although they have been in America, England, Norway, Sweden and Denmark. At any rate, no persons having sore throat should be employed in dairies or in stables where dairy animals are kept. Professor Wannenmacher spoke finally about streptococcic infections of the teeth. He emphasized the importance of prophylactic measures to avoid infection of the pulp.

VIENNA

(From Our Regular Correspondent)

June 14, 1939.

Austrian Physicians on Postage Stamps

Shortly before Austria was absorbed by Germany, the postal authorities had the happy idea of commemorating well known Austrian physicians in a series of postage stamps. In general only a few physicians received this honor. The series of Austrian physicians was issued during 1937 and was designated as the "welfare series." These postage stamps give among others a picture of Gerhard van Swieten (1700-1772), who as personal physician of the empress Maria Theresa introduced in Vienna for the training of young physicians instruction at the bedside in place of the study of books. Another stamp had Leopold van Auenbrugger (1722-1809), to whom science is indebted for a knowledge of percussion. His discovery was forgotten, however, and was later again "discovered" by Skoda. The next one shows Karl von Rokitansky, the founder of modern pathologic anatomy (1804-1878), whose five volume textbook of anatomy became the foundation of scientific investigation in medicine. Then there is Joseph Skoda (1805-1887), the originator of physical methods of examination. In addition to percussion, introduced by Auenbrugger, he introduced auscultation. The next postage stamp is dedicated to Ferdinand von Hebra (1816-1880), who gained worldwide renown as a reformer of dermatology. The ophthalmologist Ferdinand von Arlt (1812-1887), who did so much for surgery and diagnosis of the eye, has likewise been commemorated; then there was a postage stamp showing Joseph Hyrtl, the universal anatomist (1810-1894), whose school in Vienna did pioneering service for all Europe. Then there followed a stamp with Theodor Billroth (1829-1894), founder of modern war surgery and originator of extirpation of the larynx and the stomach. The series closed with Theodor Meynert (1833-1892), psychiatrist and anatomist of the brain, whose researches are still recognized. He founded a modern institution for the insane in Vienna and attracted many students, who propagated his idea throughout the world.

The German Society for Microbiology

A short time ago the eighteenth meeting of the German Society for Microbiology was held in Vienna. Professor Prigge of Frankfort gave the first lecture, on "Bacteriology, Immunology and Epidemiology of Bacillary Dysentery." He demonstrated that the Shiga-Kruse bacilli contain, in addition to the well known toxin, also an endotoxin, which in contradistinction to the first is thermostable and has no protein-like characteristics. Many other types of dysentery bacilli contain only endotoxin, which is responsible for the development of intestinal changes. For the active vaccination of human subjects only a mixture of endotoxin, toxin and antitoxin can be used. In an epidemic of 145 cases in Mecklenburg twenty were fatal. In Kruse E dysentery, which is especially dangerous for young children and old persons and which occurs in Germany almost exclusively, it is especially important that the Gruber-Widal test be made; it produces positive results in more than 63 per cent of the cases. Substitute culture mediums were discussed by Hettche of Munich and Zimmermann of Breslau. As a substitute for agar, silicic acid and polyvinyl alcohol have been recommended, as well as the soluble cellulose ethers. The role of bacteria in the carious destruction of teeth was discussed by Gins of Berlin. In contradistinction to many earlier investigators, he succeeded in demonstrating that under certain conditions the dental substance serves as food for the bacteria. However, in small children these bacteria of dental caries do

not yet occur. Schlossberger of Berlin discussed the foundations of chemotherapy. Prontosil and its derivatives were discussed by Domagh of Elberfeld. These substances are especially effective against streptococci. Now investigations are being carried out to find chemical substances which are active against other infections (gonococci and various types of viruses). Of special interest was a lecture by Schwarz on the conservation of fish. He found that the best method of conservation for such foods consists in "gassing" them with carbon dioxide in a closed container and at low temperatures. This prevents the growth of the bacteria in the fish.

Accident Insurance Against Occupational Diseases

A proclamation of the government of the German reich for 1939 introduces into Austria the extension of the social insurance laws as they are in force in Germany. Now employees who contract an occupational disease are treated as if they had sustained an accident and thus receive the benefits of accident insurance. They receive free medical or hospital care and, in case of permanent injury of their health or of permanent impairment of their working capacity, a compensation or pension (pension for invalids); however, from time to time they have to submit to an examination so that it may be determined whether the impairment persists to the same extent and degree. The disorders recognized as occupational diseases are listed. The list differs greatly from the one heretofore in force in Austria; it is much more extensive and thus signifies great protection for the working classes.

Organization for Research on Cancer

A short time ago a new Association for Research on Cancer was founded in Vienna. It is really nothing else than a combination of the various organizations which have existed in Austria. The extensive preliminary work which the Viennese Society for Control of Cancer accomplished formerly under its president, Prof. Alex Fränkel, and then under Professor Eiselsberg, is being utilized. The purpose of the new foundation is to obtain extensive statistics on neoplastic disease and thus increase the knowledge of the predisposing factors. The new foundation, which takes the place of the dissolved societies, introduces nothing essentially new but is only a more rigid combination and unification of the previously existing organizations.

ITALY

(From Our Regular Correspondent)

June 20, 1939.

Appointment of Professor

Prof. Pio Bastai, who taught clinical methodology and pathology at the University of Florence, was recently appointed to the chair of clinical medicine at Padua University. Professor Bastai has written important articles on familial splenomegaly with liver cirrhosis, the pathogenesis of Baumgarten's syndrome and the role of heredity in the pathogenesis of sporadic cases of hemolytic anemia and of a hormone deficiency in the development of pernicious anemia, achylic anemia and chlorosis. He also has written on experimental and spontaneous hypersensitivity. From his studies on the nature of tuberculin reactions he early adopted conceptions on a condition of hypersensitivity which is now known as para-allergy. He was one of the first to report the negativity of the tuberculin reactions in malignant lymphogranuloma. He has carried on important work on encephalitis, herpetic infections, brucellosis and problems of functional surgery. He was the first to resort to partial removal of the parathyroids in the treatment of obliterating thromboangiitis. Professor Bastai and his school have engaged in research on the clinical phenomena of old age during the last ten years. He has written more than thirty articles on the subject. The phenomena of old age are interpreted in his book by such original conceptions that a foreign firm made arrangements for the translation of the book into French.

Aid from Medical Syndicates

The National Medical Syndicate was recognized by law in 1937. Representatives of any medical syndicate can be members. The funds are made up by voluntary donations of the members, the profits of publishing a journal and half the amount charged for drawing up medical certificates. The last mentioned item was established in 1938 in about forty Italian provinces and it produced about 500,000 Italian lire ($25,000) during the year. Help from the treasury was given to 554 physicians with total expenses of 250,000 lire ($12,500). The figures are still modest because physicians refuse to ask for help unless they are in great need. The board of directors is planning to enlarge the functions in order to help physicians who are in need and to establish scholarships for sons of physicians and eventually to establish old age insurance.

Professor Belfanti Is Dead

Prof. Serafino Belfanti, a senator and head of the Istituto Sieroterapico of Milan, is dead. He wrote articles on tetanus, diphtheria antitoxin, hemolysins, the specificity of antistreptococcus serum, enzymes, the preparation and dosage of insulin and the phosphatases. The Istituto Sieroterapico has been concerned with the preparation of products for medical, veterinary, industrial and agricultural uses; it publishes the journals *Rassegna di batterioopo e sieroterapia, Biochimica e terapia sperimentale, Clinica Veterinaria, Bollettino dell'Istituto Sieroterapico Milanese* and *Bollettino della Società Internazionale di Microbiologia.*

Marriages

THOMAS WILLIAM MESSERVY JR., Meggett, S. C., to Miss Elizabeth Walker Gilberson of Charleston, June 2.

KARL P. KLASSEN, Columbus, Ohio, to Miss Elvera Ann Hertz of Cleveland Heights, Ohio, May 29.

C. HARLAN JOHNSTON, Des Moines, Iowa, to Miss Margaret Diesner Alexander of Minneapolis, May 13.

CHARLES CLARK KISSINGER, Washington, D. C., to Miss Mary Stribling of Seneca, S. C., June 22.

THOMAS MCKEAN DOWNS, Bryn Mawr, Pa., to Mrs. Catherine Drinker Bowen of Merion, June 30.

PLINIO H. MONTALVAN, New York, to Miss Ruth Gardiner Warren of Washington, D. C., recently.

LEO IGNATIUS DONOVAN, Washington, D. C., to Miss Dorothy Marie Millard of Brooklyn, May 27.

WILLIAM H. DE RAMUS, Selma, Ala., to Miss Eleanor Faye Miller of Jackson, Tenn., June 17.

FRANK A. KEARNEY II, Phoebus, Va., to Miss Frances Elizabeth Tilman of Saltville, June 10.

EMORY L. MAURITZ, Des Moines, to Miss Verna Lisle Byers of Detroit at Davenport, May 1.

BROOKE BAYLOR MALLORY to Miss Virginia Bailey Carter, both of Lexington, Va., June 16.

JAMES PENNOYER III, Maplewood, N. J., to DR. MIRIAM H. MELLON of Pittsburgh in June.

JOHN FRANKLIN JONAS, Marion, N. C., to Mrs. Marie Smith Griffin of Valdese, May 31.

PAUL MCNEELY DEATON to Miss Evelyn Goode, both of Statesville, N. C., in June.

ELVIN E. KEETON, Paola, Kan., to Miss Cora Belle Kent of Ypsilanti, Mich., July 1.

ROME TURNER DABBS, Verona, Miss., to Miss Menta Taylor of Philadelphia, June 4.

SIMON J. MAYDET, Chicago, to Miss Anne Koopersmith of Mendota, Ill., June 18.

ROWLAND H. MUSICK, Mendota, Ill., to Miss Virginia Quinn of Shirley, June 10.

ALBERICO MASUCCI, Paterson, N. J., to Miss Katherine Lanterman recently.

BEN F. KILGORE to Miss Gertrude Frey, both of Des Moines, Iowa, June 10.

EMILY A. SVOBODA to Mr. Thomas A. Roscoe, both of Chicago, July 8.

Deaths

Charles Howard Goodrich ✠ Brooklyn; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894; member of the House of Delegates of the American Medical Association, 1932-1935 and 1936-1938; past president of the Medical Society of the State of New York and the Medical Society of the County of Kings; fellow of the American College of Surgeons; attending surgeon to the Methodist Episcopal Hospital and the Brooklyn Orphan Asylum; consulting surgeon to the Trinity Hospital, Brooklyn, and the Brattleboro (Vt.) Memorial Hospital; aged 66; died, May 6, of coronary thrombosis.

Byron Hubbard Jackson ✠ Scranton, Pa.; Baltimore Medical College, 1898; fellow of the American College of Physicians; member of the American Roentgen Ray Society and the American College of Radiology; member and past president of the Radiological Society of North America; formerly director of the Pennsylvania Tuberculosis Society; aged 65; for many years chief radiologist to the Scranton State Hospital and the Hahnemann Hospital; chief radiologist to the West Side Hospital, St. Mary's Hospital and the Moses Taylor Hospital, where he died, May 16.

Charles Addison Elliott ✠ Chicago; Northwestern University Medical School, Chicago, 1898; professor of medicine at his alma mater; vice president of the American Medical Association, 1927-1928; member of the National Board of Medical Examiners; member of the Association of American Physicians; fellow of the American College of Physicians; formerly a member of the medical council of the U. S. Veterans' Bureau; on the staff of the Passavant Hospital; aged 66; died, June 26, of cardiovascular disease.

Julius Weiss ✠ New York; Long Island College Hospital, Brooklyn, 1902; instructor in clinical surgery at the Cornell University Medical College, 1911-1912, and instructor in gynecology at the New York Post-Graduate Medical School and Hospital, 1926-1928; one of the founders and president of the medical board and on the staff of the Bronx Maternity and Woman's Hospital; on the staff of the Lutheran Hospital; formerly on the staff of the Peoples Hospital; aged 63; died, April 11, in St. Luke's Hospital.

Robert Moore Blanchard ✠ Colonel, U. S. Army, retired, Washington, D. C.; Miami Medical College, Cincinnati, 1899; entered the army as assistant surgeon in 1902; served during the World War; rose through the various grades to that of colonel in 1928; was retired Sept. 30, 1938 by operation of law; fellow of the American College of Surgeons; aged 64; died, May 17, in the Walter Reed General Hospital.

Ralph Augustine McDonnell ✠ New Haven, Conn.; Yale University School of Medicine, New Haven, 1892; clinical professor emeritus of dermatology at his alma mater; consulting dermatologist to the New Haven Hospital and the Grace Hospital; past president of the Connecticut State Medical Society, New Haven County Medical Society and the New Haven Medical Society; aged 70; died, May 26.

Paul Thorndike, Boston; Harvard University Medical School, Boston, 1888; clinical professor emeritus of genito-urinary surgery at his alma mater and the graduate school; member of the Massachusetts Medical Society; member and past president of the American Association of Genito-Urinary Surgeons; on the staff of the Boston City Hospital; aged 76; died, May 28, in West Roxbury.

Lloyd Aloysius Masterson, New Orleans; St. Louis University School of Medicine, 1927; member of the Louisiana State Medical Society; director of the bureau of maternity and infant hygiene of the state board of health; formerly director of St. Landry Parish Health Unit; aged 39; was killed in an automobile accident, May 25, near Atlanta, Ga.

Thomas Andrew Vogel ✠ Columbus, Ohio; Georgetown University School of Medicine, Washington, D. C., 1921; formerly assistant professor of obstetrics at Ohio State University College of Medicine; on the staffs of St. Anthony's Hospital, Mount Carmel Hospital and St. Ann's Hospital; aged 45; died suddenly, April 1, of coronary occlusion.

Charles Homer Ewing ✠ Larned, Kan.; University Medical College of Kansas City, Mo., 1902; formerly secretary of the Kansas State Board of Medical Registration and Examination; at one time county coroner, state representative and member of the state board of health; on the staff of the Larned City Hospital; aged 66; died, May 4.

Robert Hyle Sanders, Rock Springs, Wyo.; University of the South Medical Department, Sewanee, Tenn., 1908; member and past president of the Wyoming State Medical Association; state senator, 1933-1937; on the staff of the Wyoming General Hospital; served during the World War; aged 54; died, April 24, of cirrhosis of the liver.

Herbert Bailey Vail ✠ Belleville, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; formerly school doctor, police surgeon, health officer and president of the local board of health; aged 71; at one time on the staff of St. Barnabas Hospital, Newark, where he died, April 10, of coronary occlusion.

Harry Oscar Delaney, Beloit, Wis.; Rush Medical College, Chicago, 1903; member of the State Medical Society of Wisconsin; formerly health officer and member of the city board of education; on the staff of the Beloit Municipal Hospital; aged 66; died, April 18, of arteriosclerosis, coronary occlusion and chronic nephritis.

Washington J. Meadows, Greensboro, N. C.; Medical College of Alabama, Mobile, 1894; member of the Medical Society of the State of North Carolina; aged 67; on the staffs of the Wesley Long Hospital, Sternberger Hospital and St. Leo's Hospital, where he died, April 21, of hypertension and arteriosclerosis.

Edson Selden Cummings ✠ Portland, Maine; Medical School of Maine, Portland, 1900; member of the New England Roentgen Ray Society and the Radiological Society of North America; served during the World War; on the staff of the Maine Eye and Ear Infirmary; aged 63; died, April 11, of pneumonia.

Albert William Elmer, Davenport, Iowa; University of Pennsylvania Department of Medicine, Philadelphia, 1886; member of the Iowa State Medical Society; fellow of the American College of Surgeons; on the staffs of Mercy and St. Luke's hospitals; aged 81; died, April 6, of cerebral hemorrhage.

Joseph Mark Sowers, Kula, Hawaii; Northwestern University Medical School, Chicago, 1924; member of the Hawaii Territorial Medical Association; served during the World War; on the staff of the Kula Sanitarium; aged 45; died, March 26, in the Para Hospital of malignant hypertension.

Frank Everett Benjamin ✠ Riverhead, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1892; past president of the Suffolk County Medical Society; aged 70; died, April 30, of chronic nephritis, pulmonary thrombosis and cerebral thrombosis.

Lewis Marshall Walker, Cambridge, Mass.; Harvard University Medical School, Boston, 1891; member of the Massachusetts Medical Society, American Psychiatric Association and the New England Society of Psychiatry; aged 72; died, April 4, in St. Augustine, Fla., of pneumonia.

Edwin Clarence Button ✠ Great Bend, Kan.; University of Kansas School of Medicine, Kansas City, 1906; past president of the Barton County Medical Society; health officer of Great Bend; formerly county health officer; on the staff of St. Rose Hospital; aged 59; died, April 9.

David Ruslander, Buffalo; University of Buffalo School of Medicine, 1929; member of the American Psychiatric Association; aged 33; on the staff of the Buffalo State Hospital; died, April 29, in the Edward J. Meyer Memorial Hospital of scarlet fever and acute toxic myocarditis.

Samuel Furman Brasington, Camden, S. C.; Kentucky School of Medicine, Louisville, 1897; member of the South Carolina Medical Association; formerly state senator and mayor of Camden; aged 65; on the staff of the Camden Hospital, where he died, April 27, of hemiplegia.

William Rushmer White ✠ Ellicott City, Md.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1900; medical director of the Patapsco Manor Sanitarium; aged 64; died, April 21, in the Johns Hopkins Hospital, Baltimore, of pneumonia and diabetes mellitus.

Boyd Edwin Wilkinson ✠ Paterson, N. J.; Baltimore Medical College, 1905; member of the Radiological Society of North America; served during the World War; on the staff of the Paterson General Hospital; aged 59; died, April 11, of myocarditis and arteriosclerosis.

Dale Dildy, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1936; member of the Arkansas Medical Society; on the staff of the State Hospital; aged 27; died, April 5, in Nashville of chronic nephritis, cerebral hemorrhage and hypertension.

Irving Henry Russotto, New York; University and Bellevue Hospital Medical College, New York, 1916; served during the World War; on the staff of the Veterans Administration Facility; aged 46; died, April 8, in the Lenox Hill Hospital of mesenteric thrombosis.

Harvey Loren Van Pelt ✠ Ithaca, N. Y.; Cornell University Medical College, New York, 1902; formerly member of the board of health; aged 61; on the staff of the Memorial Hospital, where he died, April 26, of injuries received when struck by an automobile.

Lawrence Joseph Osborne, New York; Eclectic Medical College of the City of New York, 1896; Dartmouth Medical School, Hanover, N. H., 1897; for many years member of the city health department; served during the World War; aged 70; died, April 28.

Junius V. Talley, Nashville, Ga.; Kentucky School of Medicine, Louisville, 1894; for many years mayor of Nashville; formerly mayor of Milltown; aged 67; died, April 19, in a hospital at Waycross of diabetes mellitus following transurethral prostatic resection.

Harmon Clyde Wolfe, Grand Rapids, Mich.; Detroit College of Medicine, 1905; member of the Michigan State Medical Society; county coroner; for many years on the staff of St. Mary's Hospital; aged 62; died, April 11, of coronary occlusion and sclerosis.

Charles Emerson Libbey, East Hardwick, Vt.; Boston University School of Medicine, 1897; member of the Vermont State Medical Society; served during the World War; aged 65; died, April 8, in the Copley Hospital, Morrisville, of prostatectomy.

Albert Dickson Patillo Sr., Wichita Falls, Texas; Baylor University College of Medicine, Dallas, 1911; member of the State Medical Association of Texas; past president and secretary of the Wichita County Medical Society; aged 57; died, April 17.

George E. Papadopoulos, Weirton, W. Va.; National University of Athens School of Medicine, Greece, 1909; aged 52; died, April 5, in the Ohio Valley General Hospital, Wheeling, of osteitis of the fourth and fifth lumbar vertebrae and uremia.

Adolph Joseph Shimek, Manitowoc, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; member of the State Medical Association of Wisconsin; served during the World War; aged 58; died, April 30, of coronary thrombosis.

George Waterman Fifield ✠ Janesville, Wis.; Northwestern University Medical School, Chicago, 1896; served during the World War; aged 67; on the staff of the Mercy Hospital, where he died, April 21, of hypertensive nephritis.

Adolph James Kahn, Los Angeles; Bellevue Hospital Medical College, New York, 1886; member of the California Medical Association; past president of the city and county board of health of Napa, Calif.; aged 82; died, March 29.

Benjamin Burch Parish, Walla Walla, Wash.; University of Louisville (Ky.) School of Medicine, 1910; member of the Tennessee State Medical Association; on the staff of the Veterans Administration Facility; aged 52; died, April 29.

James F. Prendergast, Morton, Pa.; University of Pennsylvania Medical Department, Philadelphia, 1884; at one time on the staff of the White Haven (Pa.) Sanatorium; aged 79; died, March 10, of hypertensive cardiovascular disease.

Pitt Edward Tucker, Buckingham, Va.; Medical College of Virginia, Richmond, 1897; member of the Medical Society of Virginia; served during the World War; on the staff of the Southside Hospital, Farmville; aged 68; died, April 27.

James Anderson Grider, Louisville, Ky.; University of Louisville Medical Department, 1894; aged 67; died, April 14, in the Veterans Administration Facility, Hines, Ill., of lymphosarcoma with metastasis to the liver, spleen and heart.

William Herbert Taylor, Ludington, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885; member of the Michigan State Medical Society; aged 85; died, April 26, of myocarditis and chronic cystitis.

Archie Currie MacKinnon, Atlanta, Mich.; Detroit College of Medicine, 1895; veteran of the Spanish-American and World wars; aged 66; died, April 22, in the United States Marine Hospital, Detroit, of a streptococcic infection.

John Woolfolk Winston, Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1903; aged 59; on the staff of the Leigh Memorial Hospital and the Norfolk General Hospital, where he died, April 17.

Alex B. Garland, Vernon, Texas; University of Nashville (Tenn.) Medical Department, 1905; member of the State Medical Association of Texas; medical director and owner of the Vernon Sanitarium; aged 59; died in April.

James Thomas McKenna, Troy, N. Y.; Albany Medical College, 1896; member and past president of the city board of education; formerly county physician; aged 75; died, April 17, of chronic myocarditis and arteriosclerosis.

John Embert Willis ✠ Worcester, Mass.; Boston University School of Medicine, 1898; aged 64; on the staff of the Hahnemann Hospital, where he died, April 21, of coronary thrombosis and hypertensive heart disease.

Leonard Murray Campbell Parker, Baltimore; Baltimore Medical College, 1900; member of the Medical and Chirurgical Faculty of Maryland; aged 60; died, April 22, in the Mercy Hospital of arteriosclerotic heart disease.

Lee Melford Whitsitt, Dallas, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1909; member of the State Medical Association of Texas; aged 77; died, April 2, of thrombo-angiitis obliterans.

William Williams ✠ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; served during the World War; aged 56; died, April 5, of a self-inflicted bullet wound.

Erling Alfred Bothne, Ulen, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; aged 67; died, April 6, in St. Ansgars Hospital, Moorhead, of cirrhosis of the liver.

Harold F. Walsh, Alamosa, Colo.; Kansas City (Mo.) University of Physicians and Surgeons, 1928; member of the Colorado State Medical Society; aged 40; died, April 16, in Denver of nonepidemic encephalitis.

Albert James McCrea, Southbridge, Mass.; Eclectic Medical Institute, Cincinnati, 1894; member of the Massachusetts Medical Society; on the staff of the Harrington Memorial Hospital; aged 68; died, April 28.

Harry Herbert Hagedorn ✠ Sioux City, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; served during the World War; aged 54; on the staff of St. Vincent's Hospital, where he died, April 4.

Charles William Powell, Atlanta, Ga.; Leonard Medical School, Raleigh, N. C., 1910; medical superintendent and owner of the William A. Harris Memorial Hospital; aged 59; died, March 21, of coronary occlusion.

Claudius Ezra Rector, England, Ark.; National University of Arts and Sciences Medical Department, St. Louis, 1912; Eclectic Medical University, Kansas City, Mo., 1914; aged 52; died, April 5, of heart disease.

Charles Ludwig Ill ✠ Newark, N. J.; Bellevue Hospital Medical College, New York, 1888; fellow of the American College of Surgeons; aged 73; died, May 4, of arteriosclerosis and coronary thrombosis.

Adolph G. Mizell, Shelbyville, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; member of the Illinois State Medical Society; aged 67; died, April 23.

Frederick L. Riser, Henderson, Colo.; Homeopathic Medical College of Missouri, St. Louis, 1884; aged 80; died, April 28, in the Colorado General Hospital, Denver, of diabetes mellitus with gangrene.

Wilmer Phelps Frazier ✠ Carthage, Ill.; Rush Medical College, Chicago, 1897; secretary of the Hancock County Medical Society; served during the World War; aged 74; died, April 26, of pneumonia.

Richard Eugene Windley, Vanceboro, N. C.; University of Maryland School of Medicine, Baltimore, 1903; formerly health officer of Beaufort County; aged 61; died, April 25, of coronary thrombosis.

Lynnley George Smith, Philadelphia; Temple University School of Medicine, Philadelphia, 1917; served during the World War; aged 53; died, March 26, of coronary thrombosis and arteriosclerosis.

William Harvey Litchfield, Marblehead, Mass.; Harvard University Medical School, Boston, 1882; member of the Massachusetts Medical Society; aged 84; died, April 2, of hypostatic pneumonia.

Emory A. Didama, Cortland, N. Y.; Syracuse University College of Medicine, 1886; member of the Medical Society of the State of New York; aged 77; died, April 14, of carcinoma of the sigmoid.

Harry Ross Wilson, Shawnee, Kan.; University Medical College of Kansas City, Mo., 1900; National Medical University, Chicago, 1905; served during the World War; aged 60; died, April 19.

John Franklin Ward, Fitzgerald, Ga.; Atlanta College of Physicians and Surgeons, 1907; member of the Medical Association of Georgia; served during the World War; aged 52; died, April 9.

Frank Ray, Chesterhill, Ohio; Starling Medical College, Columbus, 1894; member of the Ohio State Medical Association; aged 72; died, March 24, in the Mercy Hospital, Columbus.

John Lovell Sprague ✠ Providence, R. I.; Harvard University Medical School, Boston, 1893; formerly a member of the school board; aged 68; died, April 25, of acute coronary occlusion.

Frederick Day Candler, Merriam, Kan.; Medico-Chirurgical College of Kansas City, Mo., 1902; member of the Kansas Medical Society; aged 64; died, April 27, of cerebral arteriosclerosis.

Emily Louise Barnes Robinson, Cleveland Heights, Ohio; Homeopathic Hospital College, Cleveland, 1889; on the staff of the Huron Road Hospital, East Cleveland; aged 73; died, April 17.

La Mott Day, West Henrietta, N. Y.; University of the City of New York Medical Department, 1888; member of the Medical Society of the State of New York; aged 76; died in March.

David Taylor Davis, Chattanooga, Tenn.; Vanderbilt University School of Medicine, Nashville, 1888; aged 83; died, April 29, of prostatic hypertrophy and acute retention of the urine.

Herbert Francis Kenny ✠ Waukesha, Wis.; University of Michigan Medical School, Ann Arbor, 1916; served during the World War; aged 51; died, April 14, of coronary thrombosis.

Charles L. O'Brien ✠ Chicago; Rush Medical College, Chicago, 1903; on the staff of St. Francis Hospital, Evanston, Ill.; aged 59; died, April 29, of erysipelas and pernicious anemia.

John William Bowdoin, Bloxom, Va.; College of Physicians and Surgeons, Baltimore, 1876; University of the City of New York Medical Department, 1877; aged 84; died, April 5.

George Clough Lowell, San Anselmo, Calif.; University of California Medical School, San Francisco, 1936; member of the California Medical Association; aged 45; died, March 27.

Frank Thomas MacLeod, New Waterford, N. S., Canada; Dalhousie University Faculty of Medicine, Halifax, 1919; aged 58; died, March 9, in the Sydney City Hospital, Sydney, N. S.

William Davis Hope, Lockhart, S. C.; University of Maryland School of Medicine, Baltimore, 1887; member of the South Carolina Medical Association; aged 73; died, April 27.

Tib Newberry Goff, Kenova, W. Va.; Kentucky University Medical Department, Louisville, 1904; veteran of the Spanish-American and World wars; aged 61; died, April 30.

John Frevola, Brooklyn; University and Bellevue Hospital Medical College, New York, 1920; on the staff of the Holy Family Hospital; aged 44; died, April 29, of lobar pneumonia.

Henry Reuben Plum, Lancaster, Ohio; Starling Medical College, Columbus, 1898; member of the Ohio State Medical Association; aged 71; died, April 2, of coronary thrombosis.

William Anthony Cimillo, New York; Eclectic Medical College of the City of New York, 1905; member of the Medical Society of the State of New York; aged 58; died, March 27.

John Henry Whittaker, Las Animas, Colo.; University Medical College of Kansas City, Mo., 1901; served during the World War; aged 64; died, April 4, of valvular heart disease.

John William Epler, Kearney, Mo.; Jefferson Medical College of Philadelphia, 1883; member of the Missouri State Medical Association; aged 83; died, April 23, of arteriosclerosis.

John William Watson, Henderson, Ky.; Kentucky School of Medicine, Louisville, 1894; aged 76; died, April 13, in the Boehne Hospital, Evansville, Ind., of pulmonary tuberculosis.

S. Percival Wells, Holly Hill, S. C.; Atlanta College of Physicians and Surgeons, 1904; formerly mayor of Holly Hill; aged 64; died, April 10, of coronary stenosis and nephritis.

John Anthony Manzella ✠ Buffalo; Regia Università degli Studi di Padova Facolta di Medicina e Chirurgia, Italy, 1932; aged 32; died, April 19, of pulmonary tuberculosis.

Charles Edward Lynch, Boston; Tufts College Medical School, Boston, 1923; member of the Massachusetts Medical Society; aged 40; died, April 13, of coronary thrombosis.

William A. Palmer, Corpus Christi, Texas; University of Louisville (Ky.) Medical Department, 1875; Confederate veteran; aged 92; died, April 9, of hypostatic pneumonia.

Abram N. Garver, Lorain, Ohio; University of Wooster Medical Department, Cleveland, 1879; aged 82; died, April 26, in St. Joseph's Hospital of injuries received in a fall.

Hall Alvord Kellogg, New York; University of Rochester School of Medicine, 1935; resident to the Lincoln Hospital; aged 30; died, April 23, of acute coronary occlusion.

James Melvin Ward, St. Petersburg, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 72; died, April 10, of atrophic cirrhosis of the liver.

Gustav Nils Nilsson ✠ Omaha; University of Nebraska College of Medicine, Omaha, 1928; aged 45; died, April 5, in the Clarkson Hospital of perforated gastric ulcer.

Alfred Burt Pickering, Maplesville, Ala.; University of Alabama School of Medicine, Mobile, 1911; aged 52; died, April 9, in a hospital at Selma of heart disease.

George M. Agan, Owatonna, Minn.; Hospital College of Medicine, Louisville, Ky., 1886; member of the Iowa State Medical Society; aged 79; died, March 14.

Arthur B. Lathrop, Swanton, Ohio; Starling Medical College, Columbus, 1882; Bellevue Hospital Medical College, New York, 1883; aged 82; died, April 23.

Warren A. Rosser, Atlanta, Ga.; Atlanta Medical College, 1881; for many years a member of the Monroe County Board of Education; aged 80; died, March 26.

Charles M. Marnes, Rouses Point, N. Y.; College of Physicians and Surgeons of Chicago, 1886; formerly postmaster; aged 75; died, March 27.

Charles C. Mullin, Syracuse, N. Y.; Syracuse University College of Medicine, 1898; aged 66; died, April 15, of cerebral hemorrhage and arteriosclerosis.

James Henry Townsend, Collinwood, Tenn.; University of Tennessee Medical Department, Nashville, 1892; aged 70; died, April 29, of nephritis.

Carl F. Schiedel, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1894; aged 67; died, April 29, of carcinoma of the colon.

James Chauncey Fitch, New York; University of the City of New York Medical Department, 1884; also a dentist; aged 75; died, April 22.

George Denison Clift, Purdy Station, N. Y.; University of the City of New York Medical Department, 1878; aged 88; died, April 7, of senility.

William C. Warren, Atlanta, Ga.; Atlanta Medical College, 1890; member of the Medical Association of Georgia; aged 69; died, April 23.

Verner Ashton Hartman, Post, Texas; Memphis (Tenn.) Hospital Medical College, 1908; aged 54; died, April 8, in a hospital at Lubbock.

Benjamin Franklin Hutchins, Portsmouth, Va.; Leonard Medical School, Raleigh, 1902; aged 63; died, April 2, in a hospital at Norfolk.

James W. Nixon, Gonzales, Texas; Medical College of Louisiana, New Orleans, 1880; aged 83; died, March 5, in the Holmes Hospital.

Karekeen Hekimian Sewny, New York; University of the City of New York Medical Department, 1875; aged 86; died, March 16.

Joseph M. Sanders, Scurry, Texas; Memphis (Tenn.) Hospital Medical College, 1900; aged 67; died in April of carcinoma of the throat.

William Charles Shriner, Cincinnati; Eclectic Medical Institute, Cincinnati, 1898; aged 66; died, April 28, of carcinoma of the ileum.

Harry Kotler, Chicago; University of Illinois College of Medicine, Chicago, 1933; aged 29; died, March 31, of miliary tuberculosis.

William Penning Stern, Milwaukee; Rush Medical College, Chicago, 1923; aged 40; died, April 1, of myelogenous leukemia.

George W. Buckmaster, Beaver, Okla. (licensed in Oklahoma Act of 1908); aged 81; died, April 18, of cerebral hemorrhage.

A. B. Wood, Quitman, Ark. (licensed in Arkansas in 1903); aged 69; died, April 6, of dilatation of the heart and myocarditis.

Henry Bley, Coffeeville, Miss.; Medico-Chirurgical College of Philadelphia, 1914; aged 52; died, March 9.

Correspondence

THE DILEMMA CONCERNING DIETETIC CELLULOSE

To the Editor:—A dilemma, apparently more confusing than the one regarding vitamin C requirements which Stefansson referred to in *Science* (**89**:484 [May 26] 1939), has arisen in recent years because of conflicting reports concerning the effect of cellulose in the diet. Thus, Cowgill and Sullivan (THE JOURNAL, March 18, 1933, p. 795) concluded that the laxative effect of food pulp is proportional to the amount of fiber escaping destruction in the digestive tract. Williams and Olmsted (*J. Nutrition* **11**:433 [May] 1936), however, concluded that the laxative effect of the cellulosic constituents in the diet is proportional to the percentage destroyed in the digestive tract. Similarly some investigators, such as Frey, Harding and Helmbold (*M. J. & Rec.* **127**:585 [June 6] 1928), reported that pure cellulose served quite well as a laxative, but Bastedo (Materia Medica, Pharmacology and Therapeutics, ed. 4, Philadelphia, W. B. Saunders Company, 1938) stated that he found cellulose to be ineffective. And again, Harriet Morgan (THE JOURNAL, March 31, 1934, p. 995) reported that the ingestion of pure cellulose caused increased excretion of nitrogen and minerals, while Adolph and Wu (*J. Nutrition* **7**:381 [April] 1934) found that inert bulky materials had no significant effect on protein digestibility.

All these studies involved or included the use of human subjects. The study of Frey, Harding and Helmbold, however, already indicated that their type of cellulose was not as effective in elderly subjects as in children, and it would seem that effectiveness in the more difficult instances presented by elderly persons would have served as a better criterion of the laxative value of their particular product. The results arrived at by Williams and Olmsted were obtained by study of the separate fate of the lignin, cellulose and hemicellulose of some substances as distinguished from the fate of simple crude fiber in the digestive tract, but it is my impression that the use of other materials, such as ground kapok (a highly lignified but relatively smooth and bulky fiber) and psyllium seed husks (mainly hemicellulose of a type that seems to resist breakdown better than the hemicellulose of most foods), would have yielded data supporting the conclusion of Cowgill and Sullivan.

The use of No. 300 cellophane as cellulose in Harriet Morgan's study seems to make it doubtful whether her results would apply to the use of any more satisfactory type of cellulose. In our study of the effect of No. 300 cellophane (Hoelzel, Frederick, and Da Costa, E.: *Am. J. Digest. Dis. & Nutrition* **4**:23 [March] 1937), in which we referred to this as granular cellulose, clear scratch marks as well as a tendency to polyp formation were found in the colons of three of seven rats. Hence this form of cellulose was regarded as too irritating for human use. However, I used ground No. 150 Dupont cellophane daily for about two years without any indication of irritation. No. 150 cellophane is only half as thick as No. 300. Some individuals nevertheless also found No. 150 cellophane to be quite irritating. A flakelike product made from artificial (cellophane-like) straw proved to be more satisfactory, but its use was abandoned after it was found that the manufacturers used a secret, although apparently inert, finishing material. No. 150 cellophane also was not always obtainable and was high in price. I therefore tried No. 300 cellophane with the addition of a small amount of petrolatum to avoid possible irritation. The results at first seemed fairly satisfactory, but after three weeks the use of this cellophane had to be abandoned because of severe pain from mechanical irritation. Since then, No. 150 cellophane as well as other previously nonirritating forms of cellulose could not be tolerated. The results obtained in the five day tests performed by Harriet Morgan may therefore have been largely the consequence of mechanical irritation.

These comments indicate the unsettled state of expert opinion regarding the effect of the nonnutritive part of the diet, which was already well under investigation before any vitamins were discovered. In view of this, how can one expect any general agreement in the near future concerning vitamin C or other nutritive requirements?

FREDERICK HOELZEL, Chicago.
Department of Physiology, University of Chicago.

EXERTION AND CORONARY THROMBOSIS

To the Editor:—I have just noticed the comments by Master in THE JOURNAL, April 22, on coronary thrombosis. It is, of course, hard to get at the facts as to the origin of coronary occlusion from either the experimental or the postmortem approach.

In an analysis of 100 private patients carefully studied, I was able to find 17 per cent who had had an occlusion within twenty-four hours of definitely unusual and, frequently, rather extreme exertion. For example, one of my patients, a salesman who was not used to physical strain, had been having stenocardia of effort, although it was not severe. At 6 a. m., with a temperature of 7 degrees below zero, he attempted to crank his car, which had failed to start. After a great deal of strain he did succeed, but in an hour or two he was complaining of some indigestion. At 5 p. m. he collapsed with a typical coronary occlusion.

Another, a real estate operator, who was flabby, 54, and drank several bottles of beer every day, attempted to extricate his trunk from the trunk room of an apartment house. It was finally done with considerable effort and obvious overstrain. Four hours later he went to a nearby hospital with substernal pain and was given 1 grain (0.065 Gm.) of codeine without relief. I saw him four hours after that in a severe and typical attack of coronary thrombosis.

There are seventeen such cases in my series and I should like to have an explanation of the relationship—if it is not that of overstrain—facilitating the development of a thrombus.

The basic cause of these occlusions is, of course, atheromatosis. I myself have never seen at postmortem examination a single case of coronary occlusion in which the thrombus was not at the site of a greatly roughened and, frequently, narrowed area in the coronary tree. Is it not logical to assume that during considerable strain, as the result of the breaking of a portion of the hard atheromatous area or the rupture of a tiny subintimal vessel, there may be present tissue substance which is the nucleus of platelet agglutination leading to the formation of thrombosis? A small subintimal hemorrhage or tear in the hardened wall may not be demonstrable by the time a postmortem examination is done. Further, it is well established that one's physiologic response to exercise depends a great deal on one's status as to physical stamina and "training," so to speak. The well trained athlete shows relatively little changes in pulse rate and blood pressure as compared to a sedentary individual with no physical build-up. It is also established that with severe sudden physical exertion there is sometimes an extreme rise of blood pressure but more often a considerable drop after an initial rise. It is this fall of pressure that obviously can produce a disturbance in the coronary flow, and I have long contended that in the sedentary individuals who exert themselves overmuch one can produce—with a combination of fall in blood pressure and an unduly accelerated heart—a very possible coronary stasis.

If this assumption is tenable, then the small nucleus of platelet agglutination in the presence of stasis can be said to bring about the thrombosis.

I deny that coronary thrombosis occurs as frequently in the physically active persons of equal age as in those who lead sedentary lives. I have presented talks on coronary disease in some of the smaller localities in Michigan, particularly in the farm belt, and frequently some of the best physicians in that area state that they never see any cases of coronary occlusion. Some cases obviously are missed, but most clinical types are so striking that it is not possible to miss all of them. During ten years' work in the heart clinic of the outpatient department of Harper Hospital I was able to find only two acute cases of coronary occlusion. At the same time I was seeing well over 100 cases in my private office. I believe that one of the reasons for this difference may be the difference in physical response to exercise between the two groups who are using their muscles every day and those who use their muscles little in the routine of daily life.

WARREN B. COOKSEY, M.D., Detroit.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ORANGE JUICE AND VITAMIN C

***To the Editor:*—Does orange juice lose in vitamin content if squeezed from the orange at night and kept in a lightly covered glass in a refrigerator to be served at breakfast the next morning?** **M.D., Wisconsin.**

ANSWER.—Because vitamin C is readily destroyed by oxidation, it was commonly thought for several years that it would be good practice to consume citrus juices as soon as possible after their preparation. In an investigation of the vitamin C content of orange juice performed in the laboratories of the Bureau of Home Economics of the U. S. Department of Agriculture (Daniel, Esther P.; Kennedy, Mary H., and Munsell, Hazel E.: Relative Vitamin C Content of Orange and Tomato Juices Determined Chemically and Biologically, *J. Home Econ.* **28**:470 [Sept.] 1936), a loss of about 10 per cent of the vitamin C of freshly extracted orange juice that had stood about six hours in a covered container in a refrigerator was observed. It was thought that the time of standing determined the extent of loss, and the following warning appeared in a boxed statement of practical significance of results at the end of the report: "Since juices lose their scurvy-preventing power on standing, the common household routine of preparing juice in the evening for breakfast should not be practiced." More recently, however, Munsell and her collaborators (McElroy, Olive E.; Munsell, Hazel E., and Stienbarger, Mabel C.: Ascorbic Acid Content of Tomatoes as Affected by Home Canning and Subsequent Storage, and of Tomato Juice and Fresh Orange Juice as Affected by Refrigeration, *ibid.* **31**:325 [May] 1939) have repeated the observations on orange juice, using an improved technic, and have found no appreciable loss of ascorbic acid (vitamin C) in orange juice stored for twenty-four hours in loosely covered glass jars in a refrigerator at temperatures of approximately 40 to 45 F.; i. e., safe refrigeration temperatures. It is reported that there was no difference in the results when the juice was strained through cheesecloth or through a wire sieve.

Evidence obtained from experiments performed at the Connecticut Agricultural Experiment Station, at the request of the Council on Foods (THE JOURNAL, June 10, p. 2420), also shows that fresh orange juice retains as much as 97.6 per cent of its vitamin C activity after storage for twenty-four hours in a loosely stoppered flask in a refrigerator.

It is thus clear that fresh orange juice loses little vitamin C potency on standing in the refrigerator if the juice is kept in a covered container to avoid access to air.

MECHANISM OF PREMATURE EJACULATION

***To the Editor:*—What connection is there between ejaculatio praecox and the sympathetic nervous system? What evidence is there that the nervous reflex of the erector mechanism in man belongs to the parasympathetic and the ejaculator reflex to the sympathetic system? What would be the better drugs to use in ejaculatio praecox with a hyperexcitable sympathetic?**

M.D., Washington, D. C.

ANSWER.—Premature ejaculation, like normal ejaculation, is essentially a reflex reaction. The premature state occurs frequently in normal men both early and late in life. It occurs also in organic disease of the central nervous system and of the sympathetic nervous system and in deficiencies of the sex glands. Voluntary inhibitions as well as voluntary excitations are controlling factors in the sexual act. The process in premature ejaculation is a utilization of the sympathetic and cerebrospinal pathways in such a way that there is a rapid summation instead of a gradual summation of stimuli. Thus in cases of emotionally unstable males, of infrequent copulation, of defects in the secretion of the sex glands and of diseases of the lumbosacral spinal cord one finds instances of premature ejaculation. If sexual excitation occurs as a result of afferent stimulation (visceral organs and sexual apparatus), suggestion and sensual associations and desires it follows that premature ejaculations may result from a deficiency of these factors as well as from a hyperirritable ejaculatory center in the lumbar cord (sympathetic).

Erection is brought about by engorgement of the corpora cavernosa, the result of parasympathetic stimulation. It is well known that sensory impressions by way of the optic, olfactory and auditory nerves as well as touch may cause erection. Erection may also be induced by stimulation of the glans penis. The pathways for erection are as follows: genital corpuscles in the glans penis, the dorsal nerve of the penis, common pudendal nerves into the cord and the medullated erecting nerves (of the second, third and fourth sacral cords) from the cord, which finally form the cavernous plexus and gray unmedullated cavernous nerves conveying vasodilator impulses to the corpora cavernosa.

The ejaculatory reflex is mediated by the following: rubbing of the glans penis leading to a summation of excitatory stimuli in the spinal cord carried inward by way of the dorsal nerves of the penis and the common pudendal nerves. In the cord two reflex centers are activated, one in the upper lumbar cord and the other in the lower sacral center. From the upper lumbar cord rami communicantes pass by way of the hypogastric nerves to the plexus, from which the smooth unstriated muscles of the ductus deferens, seminal vesicles and prostate derive innervation. The lower sacral center stimulates the striated muscle fibers of the compressor of the urethra and the bulbocavernosus and ischiocavernosus to clonic contraction. Mydriasis, elevation of the blood pressure, increase in the pulse rate and sweating accompany ejaculation.

There are no specific drugs for premature ejaculation. Bromides and chloral may be used for emotional states, while strychnine may be used in organic lesions of the lumbosacral cord.

FEVER THERAPY IN RHEUMATIC FEVER

***To the Editor:*—What information is available on fever therapy in the treatment of rheumatic fever or its complications?**

C. L. Carter, M.D., Ottawa, Ill.

ANSWER.—In 1933 Sutton and Dodge (*J. Pediat.* **3**:813 [Dec.] 1933) treated patients suffering from Sydenham's chorea with fever induced by intravenous injections of typhoid-paratyphoid vaccine; active carditis was found not to be a contraindication to such therapy; indeed it seemed to be benefited. Later Sutton and Dodge reported results in the treatment of eighteen patients with active rheumatic carditis by means of fever therapy; the fever was induced by typhoid vaccine in sixteen cases, by radiant energy in two cases (*J. Pediat.* **6**:494 [April] 1935; *J. Lab. & Clin. Med.* **21**:619 [March] 1936). From four to fourteen fever sessions were given over a period of from five to twenty-six days. Generally only a few fever sessions were required, each session being from two to five hours at from 105 to 106 F. In all cases clinical signs of activity of the carditis "completely subsided" within ten to fourteen days after treatment. In some cases relapses occurred after several months. It was concluded that fever therapy did not harm patients with subacute or inactive rheumatic carditis and that it apparently benefited them, at least temporarily. Further observation was required to determine whether it had any permanent beneficial effect on rheumatic carditis and its complications.

The advantages of artificial fever induced by machines such as the Kettering hypertherm over the less controllable fevers induced by injections of triple typhoid vaccine were also stressed by Barnacle, Ewalt and Ebaugh (THE JOURNAL, June 13, 1936, p. 2046), who treated thirteen cases of chorea. In seven, in which there were cardiac complications, the fever sessions were well tolerated. No detailed comments were made as to the effect of the fever sessions on the carditis.

These preliminary observations have been confirmed by the more recent studies of Simmons (*Am. J. M. Sc.* **194**:170 [Aug.] 1937), Kendall and Simpson (*Ohio State M. J.* **33**:1097 [Oct.] 1937), Williams (*South M. J.* **30**:1080 [Nov.] 1937) and Dunn and Simmons (*Ann. Int. Med.* **11**:1600 [March] 1938). In a total of about fifty additional cases of "acute rheumatic fever" and of active rheumatic endocarditis with or without chorea, fever treatment was given. Generally within four to seven weeks the signs of active carditis (fever, tachycardia, first degree heart block) disappeared. Leukocyte counts and sedimentation rates became normal in many cases. In three cases mitral murmurs disappeared (Kendall and Simpson). Dunn and Simmons noted the disappearance of pericardial effusion. In a few cases improvement had not occurred. Patients generally received an average of from five to nine fever sessions (each from two and a half to four hours at from 103 to 106 F.).

Follow-up studies in most of these cases are incomplete; in some cases they were made two years or less after treatment. In a number of cases no recurrences of active symptoms had taken place and they were classified as apparently cured; in some cases recurrences had occurred. There is therefore a general agreement that the immediate effects of fever therapy on acute rheumatic fever and on active rheumatic carditis (with or without chorea) are usually beneficial. However, since rheumatic fever and carditis are subject to a well marked tendency to spontaneous remissions, one cannot yet make any final conclusions as to the permanence of the relief from fever therapy and the ability of fever therapy to heal or prevent the cardiac and other complications of rheumatic fever. Because of these good preliminary results and because of the limited value of standard methods of treatment in these conditions, a trial of fever therapy seems justified, but only if it can be applied by those entirely familiar with the technic of its application and with its dangers.

LIGHTNING PAINS AND CEREBROSPINAL SYPHILIS

To the Editor:—**A man aged 50, married, had both legs amputated about 8 inches below the knees, in 1903, following freezing. About seven years later (in 1910), he began to have shooting pains in both stumps. These pains became progressively more severe over a period of time and did not respond to any of the usual analgesics. In 1922 in an urban medical center, a positive Wassermann reaction of the blood and spinal fluid was found. There followed eight years of intensive antisyphilitic treatment, including arsphenamine, neoarsphenamine, bismuth compounds, pyrotherapy and three injections of tryparsamide. The Wassermann reaction of the blood and spinal fluid became negative but there was no reduction in the severity and recurrence of the pains in the stump. The last Wassermann reaction of the spinal fluid, in February 1937, was negative. Since then there have been recurrent attacks of severe pains in both stumps, radiating up the thighs and hips, coming on every two to three months and lasting from one to two days. During one attack the oral temperature was 103 F. Six intravenous injections of tryparsamide 2 Gm. have been given in the past weeks, only to have the pains recur in greater severity and be controlled only by narcotics. Physical examination is essentially negative except for absence of the lower extremities as noted and inequality of the pupils with a sluggish reaction of the left eye to light.**

M.D., California.

ANSWER.—In cases of this sort in which the lightning pains, presumably as a result of involvement of the central nervous system by syphilis, have not disappeared in spite of intensive antisyphilitic therapy, it is of course necessary that the patient be studied thoroughly in order to rule out the possibility that the symptoms may be caused by something other than syphilis. Such a study should include a search for foci of infection, an x-ray examination of the spine and an effort to determine whether any other medical or orthopedic condition including circulatory disturbances, bone spur or a neuroma in the stump itself might be active.

If all such medical search proves fruitless and the condition seems to be almost certainly the result of syphilis, it would seem unwise to continue intensive antisyphilitic therapy at this point, since it has proved of little avail up to now. In fact, prolonged administration of the arsenical drugs in full dosage is frequently apt to incite tabetic pain in such a case.

Efforts must now be directed toward raising the general well-being of the patient and encouraging him mentally. Change to a warm climate, avoidance of overstrenuous exertion and the occasional judicious use of mild sedatives are in order. Colonic irrigations are sometimes helpful and anticonstipation regimens are useful; irradiation with ultraviolet rays and tonics to build up the general physical health of this patient are also desirable. If nothing else avails, a more strenuous procedure, such as fever therapy, should seriously be considered, provided the physical condition of the patient permits.

The use of narcotics for the relief of any painful symptom of tabes, including crises, cannot be too vigorously condemned. The combination of tabes and morphinism is a therapeutically impossible one and inevitably leads to deterioration.

QUESTIONABLE CONJUGAL SYPHILIS AND CHILDBIRTH

To the Editor:—**A white woman aged 26, married, missed three periods. She presented the usual signs and symptoms of a three months pregnancy. She stated that she had been pregnant about a year before but had had an induced abortion performed at two months. She is now anxious to have a child. She also stated that she had been told that she had some form of female trouble in the past. She does not know the type. She is positive, however, that four years before her husband had an acute gonorrheal infection. She has also had several attacks of cystitis in the past three years. She was never told that she had pyelitis. Her history otherwise is negative. She further stated that her husband had been told that he had syphilis. When questioned concerning this, she stated that on repeated blood examinations he had been told that the laboratories reported a two plus reaction. He has had many tests taken and always a two plus is reported. The husband insists that he has never had treatment of any kind and has never had a primary or secondary rash. He had refused to take treatment. The patient has also had several blood tests taken and in her case they have always been reported negative. Physical examination showed a well developed woman about three months pregnant. Blood counts, urinalysis and in general her examinations are entirely negative. A Wassermann test was reported negative. Her pregnancy progressed normally until the fifth month when she began to complain of frequent attacks of severe pains. These attacks of pain were always due to uterine contractions. She also had frequent attacks of cystitis. Wassermann and Kahn tests were repeated and again were reported negative. Beginning at about the sixth month of pregnancy the fetal heart tones could not be heard. She did think she felt motion, however. She continued feeling bad and seldom spent a full day out of bed. She miscarried the seventh month. The fetus was covered with a film and the skin was macerated and pealed, leaving the muscle tissue bluish red and exposed. Since this family lived quite a distance from a pathologist an autopsy was not done. On the basis of this history I would greatly appreciate your opinions on the following questions: 1. Why would the husband get a repeated two plus serologic reaction when he has never had any antisyphilitic therapy? Is he really syphilitic? 2. If we classify the husband as syphilitic, what is the significance of the repeated negative serologic reactions in her case? 3. Are we justified in classifying this stillbirth as due to syphilis? 4. What suggestion would you make as to a future pregnancy, since she is anxious to have a child? 5. How can we definitely rule out syphilis?**

M.D., West Virginia.

ANSWER.—1. Much depends on the types of serologic reactions and on who did them. Certain persons may show such a reaction but unless there is evidence of syphilis on physical examination and lumbar puncture it would not justify such a diagnosis.

2. Perhaps the wife does not have syphilis.

3. No, not without more satisfactory evidence.

4. Follow her case through carefully. Moreover, insist on a thorough, complete check of the husband.

5. A diagnosis of syphilis in the wife is not justifiable if thorough physical examination and repeated serologic blood reactions are all negative. This is particularly true in the absence of stronger evidence of the disease in the husband.

FURUNCULOSIS OF SCALP IN INFANTS

To the Editor:—**I have seen two cases of boils of the scalp in newborn babies who have been given whooping cough serum. Whooping cough did not develop in either baby although the mothers of both had whooping cough when the babies were born. One mother also has diabetes. The boils developed about one month after birth. I have used Sauer's vaccine made by Eli Lilly & Co. Do you think the serum had anything to do with the boils?**

Leland C. Pomainville, M.D., Wisconsin Rapids, Wis.

ANSWER.—Boils of the scalp (furunculosis) in young infants frequently result from pillows, excessive perspiration of the head, lack of sufficient ventilation in the infant's crib, lack of care of the scalp, "cradle-cap" and the like.

The vaccine per se could not cause boils of the scalp. The rubber vial cap of the vaccine bottle should always be thoroughly sterilized by being rubbed with pure alcohol (70 or 95 per cent) on a sterile cotton or gauze sponge. The syringe and needles for pertussis vaccine (Sauer) should be sterilized by heat, preferably in the oven (at 250 F. for one hour) or the submerged plunger, barrel and needles should be boiled in pure (preferably

distilled) water for ten minutes and cooled before use. The use of chemicals (alcohol and the like) for sterilizing the syringe and needles is hazardous, chiefly because ordinary rubbing alcohol is not antiseptic and because pure ethyl alcohol is seldom allowed to act sufficiently long to effect sterilization of the apparatus. "When the heat-sterilized syringe is reused without resterilization, as is customary when more than one child is injected, the used needle should be cautiously replaced with a sterile one, without the tip of the syringe being touched. To avoid contamination of vaccine with resultant local infection, only the very end of the plunger should be touched as the syringe is being filled and discharged." (THE JOURNAL, January 28, p. 306).

EXPOSURE TO ROENTGEN RAYS AND CYSTIC MASTITIS

To the Editor:—**A woman aged 25, always well, started to work in a busy x-ray laboratory. After seven months she started to menstruate almost continuously and was forced to stop work at the end of one year. A dilation and curettage at that time resulted in a rather severe hemorrhage but no other manifestations. She gradually regained her health and was married. At 31, four years after marriage, she noticed a lump in her breast, which grew rather rapidly and was painful, especially at the period. It was removed three months ago and found to be a fibrous tumor with mastitis. Now she has more pain than ever, especially at the period. The breast is normal to palpation. There have been no pregnancies. There is evidently an endocrine unbalance here. Could you explain it to me.**

B. F. Cook, M.D., Rutland, Vt.

ANSWER.—It is almost certain that the employment in the x-ray laboratory had nothing to do with the lump in the breast, which developed at least four years after she left the laboratory. The condition in the breast was most likely chronic cystic mastitis. This abnormality as well as the continuous bleeding which the patient had a few years ago may have been due to the presence of excessive amounts of estrogen in the body. An attempt may be made to decrease it by means of testosterone propionate, the male sex hormone. In order to obtain any satisfactory results, 25 mg. of testosterone propionate should be given hypodermically three times a week for a month or longer. However, caution must be used because of the possibility of producing virilizing symptoms as a result of this therapy.

METHYLENE BLUE IN CARBON MONOXIDE AND CYANIDE POISONING

To the Editor:—**Kindly explain the action of methylene blue in carbon monoxide and cyanide poisoning. What is the strength of the solution used.**

M.D., New Jersey.

ANSWER.—Methylene blue acts as a weak oxidizing agent in the tissues. In the blood it converts hemoglobin into methemoglobin. Methemoglobin tends to combine with cyanides and thus to diminish their poisonous effects. In carbon monoxide poisoning, on the contrary, the formation of methemoglobin further decreases the oxygen carrying capacity of the blood. It is therefore not helpful but harmful.

References:

Wendel, W. B.: THE JOURNAL, April 1, 1933, p. 1054.
Chen, K. K.; Rose, C. L., and Clowes, G. H. A.: *J. Am. Pharm. A.* **24:** 625 (Aug.) 1935.
Williams, C. L.: *Pub. Health Rep.* **46:** 1013 (May 1) 1931; Reprint No. 1473, 1937.
Henderson, Yandell: Adventures in Respiration, Baltimore, Williams & Wilkins Company, 1938.

SULFANILAMIDE AND CHRONIC PROSTATITIS

To the Editor:—**Have you any information about the use of sulfanilamide in chronic prostatitis following gonorrhea when the invading organisms are staphylococci, nonhemolytic streptococci, colon or diptheroid bacilli and the like?**

M. H. Axilrod, M.D., Atlantic City, N. J.

ANSWER.—Sulfanilamide has been used successfully in the treatment of chronic prostatitis following gonorrhea, but it should be remembered that this drug is of value only as an adjunct to systematic local prostatic treatment. Sulfanilamide is excreted in the prostatic secretion and is present in sufficient quantities to provide action against the invading organisms, but it is also necessary to provide drainage. The best known method to provide this drainage is gentle but firm massage once a week. Periodic dilations may also be used. The recommended dosage of sulfanilamide varies with the individual and with his degree of activity. The ordinary ambulatory patient should receive from 30 to 40 grains (2 to 2.6 Gm.) daily for not more than a week or ten days together with an equal amount of sodium bicarbonate. The well known toxic manifestations of the drug must always be anticipated.

PROETZ POSITION

To the Editor:—**For several years I have been thinking that I have ethmoid sinusitis of a mild nature. I am particularly interested in learning the exact position of the head as described by Proetz. Is amphetamine (benzedrine) solution 2 per cent at all comparable to the ephedrine and isotonic saline solution used for this purpose? Could you name several of the best books on the ear, nose and throat at present?**

M.D., Vermont.

ANSWER.—In the Proetz position the patient lies on his back on a table with his head hanging over the end and hyperextended so that a line from the chin to the forehead is perpendicular.

Amphetamine is put up in a 1 per cent oil solution, which would not be suitable for treatment. A substitute for ephedrine, in case of idiosyncrasy, is neosynephrin, a 1/8 per cent or 1/16 per cent solution in physiologic solution of sodium chloride.

There are several excellent textbooks on the ear, nose and throat, among them those written by Jackson and Coates, Ballenger and Lederer.

NO MERCURY ABSORPTION THROUGH RUBBER GLOVE

To the Editor:—**Is it possible for mercury to be absorbed through a rubber glove by an attendant giving a mercury inunction?**

Andrew Grinley, M.D., St. Paul.

ANSWER.—There is no absorption of mercury through a rubber glove used by an attendant giving a mercurial inunction. There is the possibility that the attendant may absorb some of the mercury through the respiratory tract and in this way evidence some manifestation of mercurialization but, if a rubber glove is intact, absorption of mercury through it is not possible.

SMOKING DURING PREGNANCY AND LACTATION

To the Editor:—**Does smoking have any effects (good or bad) on mothers during pregnancy or on the baby during this period or afterward? The question came up in a high school class and the teacher asked my opinion. I had none based on scientific facts but I said that I knew where I could get such an opinion.**

M.D., Nebraska.

ANSWER.—Smoking does not have any good effects on the mother during pregnancy; however, clinical experience would indicate that a moderate use of tobacco is not harmful to the mother or to the baby. When a woman smokes excessively it is usually suggested that she decrease her smoking during pregnancy and particularly during the nursing period.

Many physicians feel that the nicotine in tobacco may have a deleterious effect on the baby, but there is little scientific evidence to substantiate this view. Nicotine, however, does pass through into the mother's milk, so that excessive smoking may result in toxic amounts of nicotine being absorbed by the child.

NATIONAL ASSOCIATION OF FEVER THERAPY TECHNICIANS

To the Editor:—**What is the standing of the National Association of Fever Therapy Technicians?**

M.D., Illinois.

ANSWER.—This organization is promoted by a Chicago advertising agency and has no recognition from the American Medical Association, the American Congress of Physical Therapy, the American Physiotherapy Association or the American Registry of Physical Therapy Technicians.

The association proposes to certify through membership examinations those who are qualified as fever therapy technicians. There would seem to be little need for such an organization as this and, were there a need, sponsorship should be by interested professional groups.

BISMUTH COMPOUNDS WITH AMEBICIDES

To the Editor:—**Will you please inform me whether bismuth subnitrate or subcarbonate in large doses, from 30 to 60 grains (2 to 4 Gm.), when given in conjunction with chiniofon or vioform, is compatible in the treatment of amebic dysentery? What changes, if any, would take place in either drug? Would the bismuth coating lessen the efficacy of the remedy used?**

M.D., California.

ANSWER.—The use of large doses of bismuth subcarbonate or bismuth subnitrate is compatible with the use of chiniofon or vioform in the treatment of amebic dysentery if the drugs are given by mouth. If a retention enema of one of these drugs is given, the coating of the bismuth compound might interfere with its local action. The bismuth will not change the action of the drugs when they are given by mouth.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, July 15, page 254.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: *Medical (Regular).* Little Rock, Nov. 9-10. Sec., Dr. D. L. Owens, Harrison. *Medical (Eclectic).* Little Rock, Nov. 9-10. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written examinations.* Los Angeles, Aug. 7-10, and Sacramento, Oct. 16-19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Medical Endorsement.* Hartford, July 25. Sec., Dr. Thomas P. Murdock, 147 West Main Street, Meriden. *Basic Science.* New Haven, Oct. 14. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

FLORIDA: Jacksonville, Nov. 13-14. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, Oct. 10-11. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 3-4. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 18-20 Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

KENTUCKY: Louisville, Dec. 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MARYLAND: *Regular.* Baltimore, Dec. 12-15. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 12-13. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Lansing, Oct. 11-13. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 3-4. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 17-19. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, Oct. 2. *Examination.* Helena, Oct. 3-4. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Lincoln, Oct. 3-4. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Reciprocity and oral examination.* Carson City, August 7. Sec., Dr. John E. Worden, 311 W. Robinson St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, Oct. 17-18. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 9-10. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 18-21. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Dec. 13. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Oct. 28. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PUERTO RICO: Santurce, Sept. 5. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

TEXAS: *Reciprocal Endorsements.* Dallas, July 30. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, Feb. 13-15. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 13. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science.* Madison, Sept. 23. Sec., Professor Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 9-11. Sec., Dr. Henry J. Gramling, 507 Mariner Tower, Milwaukee.

WYOMING: Cheyenne, October. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

Minnesota April Report

Dr. Julian F. Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, April 18-20, 1939. The examination covered twelve subjects and included sixty questions. An average of 75 per cent was required to pass. Seventy-nine candidates were examined, all of whom passed. Four physicians were licensed by reciprocity and two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Stanford University School of Medicine		(1938)	86.3
George Washington University School of Medicine		(1936)	87.4
Northwestern University Medical School		(1934) (1937) 89.3, (1938) 84.5, 85.2, 86.6, 89.1,* 89.6,* 91.5, 92.2	92.1,
Rush Medical College		(1935) (1937) 84, 85.5, 86.6, (1938) 85.6, 86.1, 88.1	88.3,
School of Medicine of the Division of the Biological Sciences		(1937)	92.4
University of Illinois College of Medicine		(1937)	89.4, 90
Indiana University School of Medicine		(1937)	90.1
Johns Hopkins University School of Medicine		(1936)	88.2
Harvard Medical School		(1935) 89.6, (1938)	86.5
University of Minnesota Medical School		(1935) (1937) 85.6, 86.3, (1938) 82.3,* 83,* 84.3,* 84.4,* 85,* 85,* 85.3,* 85.5,* 86.1,* 86.2,* 87.2, 87.6,* 89.1,* 91.3,* 92.4,* 93.1,* 94.5,* (1939) 83.2,* 83.5,* 84.2,* 85.4,* 85.5,* 85.6,* 86.3,* 87.1,* 87.6,* 87.6,* 88.2,* 88.4, 88.5,* 88.5,* 88.6,* 89,* 89.4,* 89.6,* 93.6	89.5,
Washington University School of Medicine		(1937)	89.1
Creighton University School of Medicine		(1938)	82
Cornell University Medical College		(1935)	89.6
Ohio State University College of Medicine		(1936)	88.6
Western Reserve University School of Medicine		(1936)	89.5
University of Oregon Medical School		(1938)	87.4, 88
Hahnemann Medical College and Hospital of Philadelphia		(1937)	86.1
University of Pennsylvania School of Medicine		(1933)	90.5
University of Vermont College of Medicine		(1937)	82.3
University of Virginia Department of Medicine		(1937)	83
University of Wisconsin Medical School		(1938)	87.6
University of Manitoba Faculty of Medicine		(1938)	88.4
University of Toronto Faculty of Medicine		(1916)	81.2
McGill University Faculty of Medicine		(1937)	86

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1934)	W. Virginia
State University of Iowa College of Medicine		(1926)	Iowa
Johns Hopkins University School of Medicine		(1935)	Maryland
University of Michigan Medical School		(1934)	Michigan

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine		(1936)	N. B. M. Ex.
University of Vermont College of Medicine		(1937)	N. B. M. Ex.

* This applicant has received the M.B. degree and will receive the M.D., degree on completion of internship.

Idaho April Examination

Mr. H. B. Whittlesey, director, Bureau of Occupational License, reports the written examination held by the Idaho State Medical Examining Board at Boise, April 3-7, 1939. The examination covered twenty-two subjects and included 160 questions. An average of 75 per cent was required to pass. Eighteen candidates were examined, eleven of whom passed and seven failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1938)	81
Northwestern University Medical School		(1936)	84
University of Illinois College of Medicine		(1937)	78
State University of Iowa College of Medicine		(1924)	77
University of Louisville School of Medicine		(1937)	80, 82
Harvard Medical School		(1937)	83
University of Nebraska College of Medicine		(1930)	75
Long Island College of Medicine		(1936)	84
University of Oregon Medical School		(1925) 78, (1937)	81

School	FAILED	Year Grad.	Per Cent
Medizinische Fakultät der Universität Wien		(1920)	60
Université Libre de Bruxelles Faculté de Médecine		(1933)	68
Deutsche Universität Medizinische Fakultät, Prag		(1932)	72
Ludwig-Maximilians-Universität Medizinische Fakultät, München		(1938)	57
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1922)	56
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1914)	59
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1937)	64

District of Columbia Reciprocity Report

Dr. George C. Ruhland, secretary, District of Columbia Commission on Licensure, reports four physicians licensed by reciprocity, March 28, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Johns Hopkins University School of Medicine		(1934)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1922)	Maryland
Medical College of Virginia		(1921), (1933)	Virginia

Oklahoma Reciprocity and Endorsement Report

Dr. James D. Osborn Jr., secretary, Oklahoma State Board of Medical Examiners, reports eight physicians licensed by reciprocity from Jan. 10 through May 27, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1937)	Arkansas
Rush Medical College		(1937)	Missouri
University of Illinois College of Medicine		(1929)	Illinois
University of Louisville School of Medicine		(1937)	Kentucky
Washington University School of Medicine		(1936)	Missouri
Jefferson Medical College of Philadelphia		(1921)	N. Carolina
University of Texas School of Medicine		(1937)	Texas
University of Wisconsin Medical School		(1937)	Wisconsin

Book Notices

Everyday Surgery. By Lambert Rogers, M.Sc., F.R.C.S., F.R.C.S.E., Professor of Surgery, University of Wales, and A. L. d'Abreu, M.B., Ch.M., F.R.C.S., Senior Assistant, Surgical Unit, Welsh National School of Medicine, Wales. With an introduction by Professor G. Grey Turner, D.Ch., M.S., F.R.C.S. Cloth. Price, $4.75. Pp. 280, with 160 illustrations. Baltimore: William Wood & Company, 1938.

In this book the authors present in concise form what they consider the best accepted opinions in modern surgical practice of an everyday as contrasted to a special character. The presentation is brief and dogmatic, focusing attention on essentials in diagnosis and treatment. Stress is laid on minor technical procedures. There is no prolonged discussion of etiology, pathology or even varieties of treatment. Entire subjects are covered frequently in one or two brief sentences. The material is decidedly accurate and is presented in clearcut manner. The book covers the entire field of general surgery with the exception of gynecology and diseases of the eye, ear, nose and throat. It will be useful to the general practitioner who is confronted with an occasional surgical problem in the management of which he may require guidance.

Die elektrischen Gruppen in Biologie und Medizin. Von Rudolf Keller. With an English summary. Paper. Pp. 92, with 9 illustrations. Zurich: Sperber-Verlag, [n. d.].

This book may be considered an introduction to a relatively new department of biologic science that may be designated as "electrocytology," which has to do with measuring the static electric charges of cells or even of portions of cells. As long as cells live they have a more or less positive electrostatic charge in relation to their surrounding fluid. This charge may be measured in the living organism by means of direct microelectrometry or by estimating in ultraviolet light the concentration in living organs of dyes with known electric charge. Thus, for instance, it has been shown that usually the parenchyma is more electropositive than the connective tissue.

To follow the revelations of electrocytology one must abandon the concept of the electric charges displayed by ions during electrolysis (resulting from high amperage and low voltage electricity) and familiarize oneself with the startling fact that, in the complex solutions surrounding the living cells, ions of identical electrolytic charge may carry opposite electrostatic charges (high voltage and low amperage electricity). Thus, while both potassium and sodium ions are electrolytically positive, in biologic mediums the potassium by becoming bound to electrostatically negative compounds such as carbohydrates assumes an electrostatically negative charge. Sodium remains electrostatically positive. In consequence the positive living cells attract the electronegative potassium, the well known dominant inorganic constituent of cells, and they repel electropositive particles such as sodium, which becomes the dominant inorganic constituent of the fluids surrounding the cells.

Potassium as a cell constituent represents an "electric group" of Keller to which sugar, urea and phosphate belong, in contrast to sodium, which is a representative of the water, chloride and amino acid group, the well known serum constituents. This separation of the constituents of the organsm into two groups has been described, prior to Keller, by numerous investigators, but the reason for it has not been thus evaluated.

The rule of the "electric groups" may become of tremendous significance in our understanding of normal and pathologic biologic processes. Thus the quantitative relation between potassium and sodium in a tissue, determined by chemical assay, is one way of demonstrating the electrostatic charges in an organ. When cells become fatigued or diseased, their electric potential decreases and potassium escapes the affected parenchyma cells while sodium invades them. Hence a high sodium content of a parenchymatous organ may be considered a sign of illness.

Electrocytology enables one to comprehend better many phases of muscular and nervous action, the permeability of capillaries, the development of edema and of cloudy swelling, the fluid metabolism of the eye and the production of lymph. It helps to explain the complex secretory and reabsorptive processes in kidney and liver, other glandular organs and the gastrointestinal tract. It promises to revolutionize our understanding of pharmacology and of therapeutics. The electrostatic charge of a drug when in solution in the fluids of the body and as measured by means of the high tension apparatus will help one to determine its localization in the cells or in the fluids of the body. Still more remarkable is the concept of Keller that drugs are capable of influencing the charge of diseased cells. Thus he visualizes that the positive charge of certain cells, decreased by disease, may be restored to a more nearly normal one by certain drugs with special affinities, such as aminopyrine or strophanthin. It seems not impossible that the action of cathartics and diuretics may be explained by changes in the electric charges of certain cells.

New Ways in Psychoanalysis. By Karen Horney, M.D. Cloth. Price, $3. Pp. 313. New York: W. W. Norton & Company, Inc., 1939.

Nearly fifty years ago Sigmund Freud published the first of a series of clinical observations and formulations relative to the treatment of neurotic patients. In subsequent publications he broadened and frequently revised his views in the light of further observations. The novelty of the material and the wide departure from the accepted conceptions aroused great resistance on the part of the medical profession, but the intelligence, honesty and self criticism of the discoverer of psychoanalysis plus the therapeutic success of the method gradually won for it the respect of large numbers of medical men. Since then the growth and development of psychoanalysis have continued in a decent and orderly fashion, like those of other scientific disciplines, contributed to by hundreds of serious, scientific workers who have added their observations and made their suggestions to their colleagues for the modification of this or that detail in the theory or in the technic.

The author of the book under review was for many years associated with the main body of psychoanalysts. Recently, however, she became convinced that neither Freud nor any of the hundreds of psychoanalysts who have been working during the fifty years since Freud began have been quite right about psychoanalysis. It is almost incredible that any one should be so ambitious as to announce, as she does, that the "purpose of this book is . . . through eliminating the debatable elements, to enable psychoanalysis to develop to the height of its potentialities." For nearly half a century these debatable elements have been continually worked over and, in many instances, clarified by the rank and file of psychoanalysts. That this author should essay to straighten the matter out once and for all by her revolutionary discoveries is a confession of a lack of perspective.

The author proceeds to set up a series of propositions inferentially or directly ascribed to Freud (many of them incorrectly stated) and, having made them appear more or less absurd, she follows them with ideas which she labels her own (many of which have been standard conceptions for years past) couched in language which is intended to ring the gong of common sense. Time after time there occur such juxtapositions of the distorted theories of Freud followed by the levelheaded revisions of Horney. She refers to herself in the footnotes twenty-nine times; Freud is referred to twenty-three times and no other author more than a few times.

All this is the more regrettable because the book contains here and there some excellent points. Her compulsion to revise Freud is so insistent, however, and the commendable pages are interspersed with so much polemic that the book cannot be recommended to medical readers.

The author clearly does not expect it to be read by medical men. She accuses Freud of having a "biologic orientation," contrasting this (unfavorably) with the "social orientation" which she regards herself as having acquired. Setting biologic orientation up against social orientation is an empty, polemic trick without essential meaning, since society is made up of biologic units.

Psychoanalysis is a medical discipline. Its original technics were discovered by a physician. Its development has been largely at the hands of physicians, and its administration in this country is entirely in the hands of physicians. There is, as every one knows, a widespread tendency at the present time to accuse medicine of being antisocial or at least unsocial in its orientation. This criticism undoubtedly has had some basis in fact. Many physicians are endeavoring to correct their

astigmatism and give to the pressures and forces deriving from the social structure their proper consideration. It is unfortunate that this book, which presumably strives toward a greater clarification of the role of these social factors, should have sacrificed its value for the physician by misplaced emphases and a prevailing tone of disparagement toward some of the principles and personalities of psychoanalytic medical science.

Über exogene Reinfekte und die Superinfektion bei Tuberkulose. Von Dr. Franz Ickert, Oberregierungs- und Obermedizinalrat in Stettin. Nr. 71, Tuberkulose-Bibliothek, Beihefte zur Zeitschrift für Tuberkulose. Herausgegeben von Dr. Franz Redeker, Oberregierungs- u. Obermedizinalrat, Berlin, und Dr. Karl Diehl, dirigierender Arzt, Sommerfeld. Paper. Price, 9 marks. Pp. 67, with 47 illustrations. Leipzig: Johann Ambrosius Barth, 1939.

In this report the author devotes a good deal of space to exogenous reinfection. He refers to the teachings of Romer and numerous other authors who have worked on this subject. Cases are cited to show that such reinfection occurs. A great deal of the remainder of the study is devoted to superinfections, referring to the work of Lange and calling attention to such subjects as the exogenous stimulation of the endogenous reinfection. One hundred and seventeen references are cited on the subject of exogenous reinfection and superinfection in tuberculosis.

Die Grundlagen der neuzeitlichen Ernährung des deutschen Menschen: Ein Leitfaden für Studierende und Ärzte. Von Dozent Dr. Ferdinand Bertram, leitender Arzt der zweiten medizinischen Abteilung des Allgemeinen Krankenhauses Barmbeck, Hamburg. Boards. Price, 5.80 marks. Pp. 140, with 6 illustrations. Leipzig: Georg Thieme, 1939.

This volume is an introductory textbook in German for students and physicians. It takes up the general question of nutritional requirements, with tables of protein requirements and other essentials and the functions of the vitamins and minerals. The first part concerns the physiologic basis of nutrition. There is in the second part a discussion of foods from the standpoint of recent knowledge of nutrition, public health and agriculture. The third part discusses the food of healthy persons and provides an outline of suggested meals for Germans; the fourth part, foods, vegetarianism and fasting, and the fifth part, the nutrition of the sick. The book contains a list of references and a suitable index.

The American Way of Life. By George E. Sokolsky. With an introduction by Fulton Oursler. Second edition. Cloth. Price, $2. Pp. 180. New York & Toronto: Farrar & Rinehart, Inc., 1939.

This book is made up largely of articles prepared at the request of Fulton Oursler of *Liberty*, whose daughter returned from school one day and asked him why his magazine contained advertising, since it was misleading, created a demand for products that were not needed or wanted and was an economic waste, increasing the purchase price. She had been taught these precepts in school in a reading from a "guinea pig" book. This book is essentially a defense of advertising and an answer to all "guinea pig" books, designed to counteract their effect in destroying confidence in business and its advertisements. The author points out that the American standard of living is far above that of any other nation, even during a depression. He does not go into the question of relief of unemployment or concern himself with persons having an inadequate income for the necessities of life, and it is reasonable to presume therefore that a marxian theorist would consider the entire book so much folderol. To an unprejudiced reader, however, there is something to be said for the author's point of view. It cannot be denied that he has described certain features of the American way of life, but it can be reasonably questioned whether his defense of advertising and business is always fair and just. The principal plea of the author is that advertising reduces rather than increases the cost of consumer goods, and this by virtue of the fact that distribution and sales on a sufficiently large scale to reduce the cost per unit are possible only through advertising. His story of the creation of the demand for the orange and its development into an essential of the American dietary, with its production a major American enterprise, is a reasonable answer to those critics of advertising who claim that if there was any need for a product its sale would be as extensive without advertising as with it. He defends the right of the American to purchase what he wants when he wants it, regardless of whether it is a necessity or a less useful item, and describes the development of certain great business through the medium of advertising as being possible only because of this right. He calls attention to the number of people gainfully employed in such industries, which could not exist without advertising. While he resorts at times to exaggeration and is somewhat inaccurate, he is not as guilty in these respects as the authors of the books he is condemning. His tabulation of the creeds of advertisers and business associations is interesting, and yet these creeds remind the reviewer of a media representative, who lauded a code of self reform which was actually a program for avoiding much controversy with the Federal Trade Commission act under the stipulations of the Wheeler-Lea amendment. The author pleads that all advertising should not be criticized on the basis of black sheep advertising and praises the attempts of advertising people and big business to reform themselves, but he fails to mention that it took storms of protest, rather than internal reform, to create a public consciousness that demanded the enactment of the new Food, Drug and Cosmetic Act and the Wheeler-Lea amendment. On several occasions the author mentions the American Medical Association, and he is reasonably fair in his reference to it. Some of the comparisons which he makes between the doctor's prescription and the "patent medicine" are not justified, but, since he is not a physician, he might not be expected to write authoritatively on that subject. The reviewer does not agree with the publisher that the author has not "whitewashed," nor does he agree that he has given a true description or described the real significance of the "black sheep" in the advertising field. He states that there must be nothing fraudulent in advertising and that the public is protected against such things by legislation, but he fails to note that frauds are rampant, that the effect of the new legislation is just becoming apparent and that it will be many years before its full effectiveness is felt. The book makes pleasant reading, the author's enthusiasm is refreshing if not always accurate, and his analyses of advertising are interesting if not always complete.

Fürsorgerische Beobachtungen über die Anfänge der Lungentuberkulose des Erwachsenen. Von Prof. Dr. J. E. Kayser-Petersen, Leit. Arzt der Tuberkulosefürsorgestelle an der Med. Univ.-Poliklinik Jena, und Dr. K. H. Grenzer. Tuberkulose-Bibliothek, Beihefte zur Zeitschrift für Tuberkulose, Nr. 70. Herausgegeben von Dr. Franz Redeker, Oberregierungs- u. Obermedzinalrat, Berlin, und Dr. Karl Diehl, dirigierender Arzt, Sommerfeld. Paper. Price, 15 marks. Pp. 90, with 86 illustrations. Leipzig: Johann Ambrosius Barth, 1939.

The cases reported are divided into various groups, in the first of which there were early pulmonary infiltrations. Numerous illustrations, all from roentgenograms of the chest, show various steps in the development of these infiltrations in different locations. In another group pulmonary tuberculosis followed pleurisy with effusion, while in still another the tuberculous lesions developed in the region of the hilus of the lung. This work has been carefully done and the report contains valuable information.

Trudi konferentsii po medichniy biologii (Kiev, 15-19. XI. 1936). [Studies of the Conference on Medical Biology Held in Kiev, Nov. 15-19, 1936.] Paper. Price, 12 rubles, 50 kopecks. Pp. 304, with illustrations. Kiev: Vidavnitstvo Akademii Nauk URSR, 1937.

This volume contains papers read at the Conference on Medical Biology held in Kiev Nov. 15-19, 1936, in order to bring together workers in the various research institutions devoted to biology, to establish closer relations between biologists and medical men and to discuss the teaching of biology in medical schools. The thirty-five papers presented are in the Ukrainian and Russian. They deal chiefly with problems in evolutionary physiology, dynamics of growth and medical parasitology.

The Diabetic A B C: A Practical Book for Patients and Nurses. By R. D. Lawrence, M.A., M.D., F.R.C.P., Physician in Charge Diabetic Department, King's College Hospital, London. Sixth edition. Boards. Price, 3s. 6d. Pp. 64. London: H. K. Lewis & Co., Ltd., 1939.

This little volume is written for patients, to acquaint them with the general problem of diabetes and its treatment. It is a practical manual which tends to give the patient an intelligent comprehension of the medical as well as dietary phases of the subject. He is told the things which concern him and his daily routine, and each important point is emphasized. A considerable part of the book is devoted to diet and recipes. In this

Lawrence uses good judgment throughout and tries so hard to make the burden easy that one almost thinks that he himself is diabetic. He uses the English system of weights and measures, interspersed with the metric system, which to an American audience would be slightly confusing. The book is written much along the general lines of all diabetic manuals and is clear and concise.

Études radiographiques du poumon tuberculeux: Interprétation de radiographies pulmonaires. Par Jacques Stéphani, privat-docent de médecine interne à la Faculté de médecine de Genève. Paper. Price, 45 francs. Pp. 138, with 205 illustrations. Paris: Amédée Legrand, 1939.

In this fine volume the author begins with the x-ray appearance of the normal chest and proceeds to the smallest changes from the normal that can be detected on the x-ray film. He places considerable emphasis on blood vessels and the possibilities of misinterpretation of shadows cast by them. From the early changes he proceeds to most extensive disease, and he places especial emphasis on cavitation in all its phases of development.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Arthritis in Relation to Trauma and Pre-Existing Osteomyelitis.—The claimant, who previously had had osteomyelitis in the region of the right thigh and left knee, in the course of his employment as a hooker in connection with skidding logs, was struck just below the left knee by a catapulting small tree. He instantly suffered severe pain and limped but was able to continue work until ten days thereafter. He continued to have pain in the region of the left knee joint and that area became swollen. Eight days after the accident he went to his employer's contract physician, who had previously treated him for osteomyelitis, and requested medical treatment but was refused such treatment because the physician considered his condition to have been caused by the pre-existing osteomyelitis rather than by any accident. Thereafter, the claimant secured medical and surgical treatment and hospitalization through another physician. Multiple abscesses developed in the region of the left knee necessitating numerous surgical incisions to establish drainage. His left knee joint was aspirated on three occasions and pus obtained which, as shown by laboratory examination, contained pneumococci. A subluxation of the left tibia at the knee joint developed which the attending physician endeavored to reduce under spinal anesthesia. Thereafter five different plaster casts were applied to his leg. His left knee joint became ankylosed and draining sinuses persisted in the region of that joint. The claimant brought proceedings under the workmen's compensation act against his employer and his employer's insurance carrier. From an order of the industrial accident board awarding compensation and expenses for medical and surgical treatment and hospitalization, the employer and his insurance carrier appealed to the Supreme Court of Idaho.

At the hearing before the industrial accident board three expert medical witnesses, who had not seen the claimant at the time of or immediately after the accident but had previously treated him for osteomyelitis, testified that the claimant's condition following the accident was the result of the pre-existing osteomyelitis and not of the injury. The physician who treated the claimant after the accident testified that the claimant's condition, an "acute suppurative traumatic arthritis of the left knee" due to a pneumococcic infection, had been caused by trauma. It was his opinion, based on roentgenograms and physical examinations, that the bone marrow had not become infected, as would have occurred if osteomyelitis had been present; that the infection started in the knee joint and remained there for possibly three weeks before any bone involvement was demonstrable by roentgen examination, and that when the bone finally became infected it was an extension from the infection in the knee joint. He further testified that the "pneumococcus isn't a very common infection for either osteomyelitis or a joint," but if pneumococci settle in an injured area they may set up an infection and cause such a condition as was found in the claimant. In the judgment of the Supreme Court, the testimony in support of the board's award in favor of the claimant was positive and of more weight than the negative testimony to the contrary adduced by his employer and his employer's insurance carrier. Accordingly, the court affirmed the order of the board, awarding compensation and reimbursing the claimant for the expenses incurred by him in obtaining medical and surgical treatment and hospitalization.—*Arneson v. Robinson (Idaho), 82 P. (2d) 249.*

Narcotics: Issuance of Narcotic Prescription in Name of Fictitious Person.—The narcotic law of the state of Washington provides that "any person who shall falsely make, forge or alter or knowing the same to have been falsely made, forged or altered shall present to any druggist a physician's prescription with intent by means thereof to procure from such druggist any narcotic drug as defined in this act shall be guilty of a felony. . . ." A physician, said the Supreme Court of Washington, who issues a narcotic prescription in the name of a fictitious person and delivers it to a person not named, knowing and intending that the person to whom it is given will, by a fictitious endorsement, procure narcotic drugs from a druggist, violates the narcotic law of this state by falsely making a narcotic prescription. Furthermore, any person who knowing a physician's prescription to have been falsely made presents it to a druggist with intent to procure a narcotic drug also violates that law.—*State v. Harkness et al. (Wash.), 82 P. (2d) 541.*

Motor Vehicles: "Under the Influence of Intoxicating Liquor" Defined.—A New Mexico statute prohibits any person from operating a motor vehicle in that state while "under the influence of intoxicating liquor or narcotic drugs." In the opinion of the Supreme Court of New Mexico, a person who has taken a drink of intoxicating liquor is not necessarily under its influence but is under its influence if the drinking of intoxicating liquor affects him so that, even to the slightest degree, he is, as was stated by the Supreme Court of Arizona in construing a similar statute in *Hasten* v. *State,* 35 Ariz. 427, 280 P. 670, "less able, either mentally or physically or both, to exercise the clear judgment and steady hand necessary to handle as powerful and dangerous a mechanism as a modern automobile with safety to himself and the public." The court concluded that the testimony in the present case to the effect that the defendant's breath smelled of whisky at the time of the accident and that he was nervous and restless immediately after the accident was insufficient to prove that he was under the influence of intoxicating liquor.—*State v. Sisneros (N. M.), 82 P. (2d) 274.*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 11-13. Dr. Daniel B. Moss, 547 West Jackson Blvd., Chicago, Secretary.

American Congress of Physical Therapy, New York, Sept. 5-8. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.

Idaho State Medical Association, Boise, Aug. 23-26. Dr. J. N. Davis, 204 Fourth Avenue East, Twin Falls, Secretary.

Kentucky State Medical Association, Bowling Green, Sept. 11-14. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

National Medical Association, New York, Aug. 14-18. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

Oregon State Medical Society, Gearhart, Sept. 6-7. Dr. M. L. Bridgeman, 1020 S.W. Taylor St., Portland, Secretary.

Rocky Mountain Medical Conference, Salt Lake City, Sept. 5-7. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 5-7. Dr. D. G. Edmunds, 610 McIntyre Bldg., Salt Lake City, Secretary.

Washington State Association, Spokane, Aug. 28-30. Dr. V. W. Spickard, 1305 Fourth Ave., Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 13-15. Mr. J. G. Crownhart, 119 East Washington Ave., Madison, Secretary.

Wyoming State Medical Society, Salt Lake City, Utah, Sept. 5-7. Dr. M. C. Keith, 156 South Center St., Casper, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Huntington, Ind.

6: 161-232 (May) 1939

Vitamin B1 and Liver Extract in Treatment of Nonspecific Chronic Diarrhea and Colitis. G. Cheney, San Francisco.—p. 161.
Glucose and Gastric Secretion. J. J. Day and S. A. Komarov, Montreal.—p. 169.
Carcinoma of Stomach, Diagnosis and Suggested Plan of Treatment. R. T. Pettit, Ottawa, Ill.—p. 176.
Gastroscopic Study of Incidence of Chronic Gastritis in Common Gastric Afflictions. G. McNeer and H. Barowsky, New York.—p. 180.
Studies in Human Biliary Physiology: I. Fasting Rate and Quantity of Bile Secretion. I. C. Zuckerman, B. Kogut and M. Jacobi, Brooklyn.—p. 183.
Intravenous Feeding of Amino Acids. Iris Corbould, R. H. Clark and R. E. McKechnie 2d, Vancouver, B. C.—p. 185.
Influence of Alkalis on Renal Function. L. C. McGee, J. E. Martin Jr., F. Levy and R. B. Purdum, Elkins, W. Va.—p. 186.
Method of Measuring Acidity and Protein Digestion Within Human Stomach. J. B. Eyerly and H. C. Breuhaus, Chicago.—p. 187.
Phenolphthalein as Test in Gastrointestinal Disease. D. N. Kremer, P. D. Shore and B. H. Wiesel, Philadelphia.—p. 192.
Histamine-Urine Test: Observations of Secretion of Hydrochloric Acid and Urinary Hydrogen Ion Concentration on 100 Patients. E. G. Allen and H. H. Haft, Syracuse, N. Y.—p. 194.
Modification of Hippuric Acid Liver Function Test. E. W. Lipschutz, Brooklyn.—p. 197.
Evaluation of Takata-Ara Reaction as Liver Function Test. M. Golob and C. Nussbaum, New York.—p. 200.
Proposed Phenolphthalein Test for Determining Presence of Gastrointestinal Lesions: Results in Ninety-Four Cases. F. D. Suttenfield, Washington, D. C.—p. 206.

American J. Obstetrics and Gynecology, St. Louis

37: 729-912 (May) 1939. Partial Index

Pelvic Pain. R. D. Mussey, Rochester, Minn.—p. 729.
Collapse Therapy for Tuberculosis in Pregnancy. W. F. Seeley, R. S. Siddall and W. J. Balzer, Detroit.—p. 741.
*Do Eclampsia and Preeclampsia Cause Permanent Vascular Renal Pathology? W. J. Dieckmann and I. Brown, Chicago.—p. 762.
Cystography in Diagnosis of Placenta Praevia. R. J. Prentiss and W. W. Tucker, Iowa City.—p. 777.
*Clinical Significance of Endometriosis. V. S. Counseller, Rochester, Minn.—p. 788.
Ureteral Injuries in Gynecologic Surgery. M. L. Leventhal, I. J. Shapiro and A. J. Platt, Chicago.—p. 797.
Clinical Significance of Appendices Epiploicae. H. C. Walser, Detroit.—p. 811.
Myomectomy During Pregnancy. R. A. Reis and M. B. Sinykin, Chicago.—p. 834.
Statistical Analysis of 1,000 Abortions. J. H. Simons, Minneapolis.—p. 840.
Effect of Alkaline Vaginal Douche on Huhner Test and Sterility. J. M. Singleton and Jean Lamar Hunter, Kansas City, Mo.—p. 856.
*Prophylactic Endocrine Therapy in Artificial Menopause. P. F. Schneider, Evanston, Ill.—p. 861.
Dysgerminoma: Report of Nine Cases, One Associated with Pregnancy. M. B. Dockerty and W. C. MacCarty, Rochester, Minn.—p. 878.
Nonconvulsive Pregnancy Toxemias: Their Relationship to Chronic Vascular and Renal Disease. D. E. Reid and H. M. Teel, Boston.—p. 886.

Eclampsia and Vascular Renal Disease.—In trying to determine what percentage of eclamptic or preeclamptic patients are likely to have permanent vascular renal damage, a recurrence of the toxemia, a subsequent normal pregnancy, to abort, have an abruptio placentae, a stillborn fetus and the like, Dieckmann and Brown studied their own data obtained from pregnancies following toxemia and that of more than 115 papers dealing with the follow-up of patients who have had toxemia of pregnancy. They especially selected reports of cases in which a subsequent pregnancy had occurred after toxemia, because it is generally agreed that pregnancy is the best test of the vascular renal system. Their conclusions are that subsequent pregnancies will be normal in 40 per cent of the cases of eclampsia and complicated by a recurrence or exacerbation of the hypertension, edema or albuminuria in 40 per cent. Less than 10 per cent will have a recurrence of the eclampsia. More than 37 per cent of the patients had vascular renal disease, indicated usually by a hypertension. The authors found no evidence of chronic glomerulonephritis in any of their eclamptic patients. In nonconvulsive toxemia of pregnancy subsequent pregnancies will be normal in at least 30 per cent and probably 40 per cent of the cases and complicated by a recurrence or exacerbation of the hypertension, edema or albuminuria in from 50 to 70 per cent. More than 40 per cent of the patients had vascular renal disease, evidenced usually by a hypertension. Renal impairment, as indicated by a urea clearance of less than 50 per cent and due to nephrosclerosis, occurred in 2 per cent. Chronic glomerulonephritis was present in 0.5 per cent. The authors believe that true eclampsia and preeclampsia do not cause permanent vascular or renal damage and that, when such damage occurs, either the condition was not eclampsia or preeclampsia or these diseases were superimposed on a patient with a predisposition to hypertensive arterial disease. The fetal mortality, including all fetal deaths from abortion, stillbirth and neonatal deaths, is more than 25 per cent in all pregnancies after eclampsia and 15 per cent after nonconvulsive toxemia. In toxemic pregnancy after eclampsia it is more than 40 per cent and in recurrent toxemia it is more than 20 per cent. Normal pregnancies after eclampsia or preeclampsia have a 5 per cent fetal mortality. Eclampsia and preeclampsia rarely occur without premonitory signs of excessive or too rapid gain in weight, edema, abnormal increase in blood pressure, hypertension or proteinuria. Either disease may recur, but such a repetition should always suggest vascular renal disease.

Endometriosis.—Counseller states that, regardless of their particular location, the lesions of endometriosis have as their common denominator the presence of endometrial tissue which is indistinguishable pathologically and physiologically from that found within the uterine cavity. The lesions are neither tumors nor products of inflammation, although they have some of the characteristics of both pathologic phenomena. Endometriosis appears to be associated frequently with primary or secondary sterility and in a large proportion of cases there is associated disease of the uterus or adnexa. In many cases in which this condition is found, an abdominal or a pelvic operation has been performed previously. At the Mayo Clinic an incidence of pregnancy of only 56.5 per cent was found; previous surgical procedures had been carried out in 54.2 per cent of cases and associated disease of the uterus or ovaries or both was found in more than 50 per cent. Aberrant endometrium may appear within the uterus, in the pelvic tissues or organs and finally in locations which are distant from the uterus. In all of these locations the pathologic changes are identical; there are glandular tubules identical with the epithelial diverticula of the uterine mucosa, formed of simple columnar epithelium which is often ciliated. Around these epithelial formations there is a connective tissue containing nuclei, resembling that in the subendometrial tissue of the uterus. In addition to this morphologic resemblance the endometrial formation, under the influence of the ovarian hormones, follows the menstrual cycle of the uterus; hemorrhage occurs, cysts form and rupture may ensue. During pregnancy the ectopic tissue undergoes formation of decidua, involution occurring subsequently. The author reviews the embryonic metaplastic and migratory hypotheses which purport to explain the pathogenesis of endometriosis and states that from the manner of the distribution of the implants the hypothesis that endometrial tissue from the uterus is carried by lymph channels to points outside the uterus is the least objectionable. Pelvic pain, quite definitely related to menstruation, is the principal complaint for which the patient seeks relief. There is usually a ten year history from the onset of the disease and the symptoms have been progressive. Either radical or conservative surgical intervention, depending on the extent and involvement of the lesions, is indicated.

Endocrine Therapy in Artificial Menopause.—Schneider epitomizes the conclusions and observations derived from the study of 434 cases of artificial or physiologic menopause. Any combination of symptoms of the syndrome occurring prior to, during or after the so-called menopause must be given consideration as evidence of estrogenic deficiency. Therapeutic results may be more promptly and effectively obtained by accurate

determination of therapeutic requirements, which vary in each instance. Early institution of endocrine therapy results in more prompt and effective response (relief of symptoms in 281 of 331 premenopausal patients) with smaller dosages than late or delayed therapy (relief obtained by ninety-nine of 103 menopausal cases) with large doses. While parenteral therapy is most effective for the determination of therapeutic requirements, oral therapy provides a more satisfactory and sustained effect. Prophylactic estrogenic therapy in artificially induced menopause is suggested. Although the method has been utilized early in only twenty-one cases of artificially induced menopause, the significance of the results would seem to be considerably enhanced by the rather similar results of the entire series.

American Journal of Ophthalmology, St. Louis

22: 477-594 (May) 1939

Spastic Entropion Correction by Orbicularis Transplantation. J. M. Wheeler, New York.—p. 477.
Lectures on Motor Anomalies: IX. Oculomotor Nerve Paralysis and Ophthalmoplegias. A. Bielschowsky, Hanover, N. H.—p. 484.
*Innocuous Clinical Entity Simulating Tabes Dorsalis: Pupillotonia with Absent Tendon Reflexes (Adie's Syndrome). J. H. Bailey and E. Saskin, Brooklyn.—p. 499.
Syphilitic Opticochiasmatic Arachnoiditis. D. Vail, Cincinnati.— p. 505.
Management of Glaucoma Following Cataract Operation. B. Y. Alvis, St. Louis.—p. 518.
Metastatic Septic Endophthalmitis with Ring Abscess of Cornea: Case Report, Clinical History and Pathologic Anatomy. C. W. Tooker, St. Louis.—p. 526.
Treatment of Glaucoma with Splenic Extract. E. A. Miller, St. Joseph, Mo.—p. 536.

Condition Simulating Tabes Dorsalis.—Bailey and Saskin discuss the occasional innocence of pupillotonia with absent tendon reflexes. In August 1937 a man of 25 of sound mind and body consulted them because he had repeatedly been refused life insurance on the ground that he exhibited metasyphilitic manifestations. He had large pupils that were immobile to light but reacted to accommodation-convergence; in addition, his ankle and knee jerks were absent. His sister, aged 24 years, in sound health and well poised, presented a similar clinical picture. Adie's statement that pupillotonia is a disease *sui generis* is disputed by those who contend that cases of pupillotonia should be divided into two distinct groups: (1) pupillotonia appearing as the sole clinical manifestation in a healthy individual and (2) pupillotonia as part of a general morbid state. It is to the first group that the eponym "Adie's syndrome" may be applied appropriately.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

41: 685-872 (May) 1939

Physiologic Effects of Radiation: I. Study of In Vitro Effect of High Fever Temperatures on Certain Experimental Animal Tumors. J. J. Jares and S. L. Warren, Rochester, N. Y.—p. 685.
Effect of Roentgen Rays on Toxicity of Blood. D. I. Macht, Baltimore. —p. 709.
Significance of Asymmetry of Pori Acustici as Aid in Diagnosis of Eighth Nerve Tumors. J. D. Camp and E. I. L. Cilley, Rochester, Minn.—p. 713.
Use of the Roentgen Ray in Obstetrics: Part III. Mechanism of Labor. W. E. Caldwell, H. C. Moloy and P. C. Swenson, New York.—p. 719.
*Mediastinal Glandular Tuberculosis in the Adult Resembling Hodgkin's Disease: Recovery of Case. G. E. Pfahler, Philadelphia.—p. 742.
Interstitial Calcinosis: Report of Case and Review of Literature. B. I. Comroe, G. W. Chamberlin and F. W. Sunderman, Philadelphia.—p. 749.
*Roentgen Diagnosis of Idiopathic Steatorrhea and Allied Conditions: Practical Value of the "Moulage Sign." J. L. Kantor, New York.—p. 758.
Congenital Neurosyphilis: Report of Case with Unusual Encephalographic Changes. G. M. Wyatt and B. W. Carey Jr., Boston.—p. 779.
Calcification in Arteries of the Leg. W. C. Huyler, New York.—p. 784.
Adenocarcinoma of Uterine Fundus. D. G. Morton, San Francisco.—p. 789.
Experience with Radiation Therapy Alone in Carcinoma of Corpus Uteri. W. P. Healy and R. L. Brown, New York.—p. 798.
Secondary Filters in Radium Therapy. Edith H. Quimby, L. D. Marinelli and J. V. Blady, New York.—p. 804.
Treatment of Metastatic Cervical Lymph Nodes. C. L. Martin, Dallas, Texas.—p. 819.
Role of Reticulo-Endothelial System in Cancer, with Reference to Congo Red Therapy in Roentgen Sickness and Anemia: Preliminary Communication. I. Arons and B. Sokoloff, New York.—p. 834.

Mediastinal Glandular Tuberculosis.—Pfahler discusses a case of mediastinal glandular tuberculosis of the primary childhood type occurring in a man of 30. A diagnosis of Hodgkin's disease was made repeatedly by various competent roentgenologists and internists in different parts of the world. The author states that the case illustrates the difficulty and importance of considering tuberculosis in every case of mediastinal Hodgkin's disease or lymphosarcoma. When there is associated enlargement externally of the lymphatic glands, it would seem advisable to avoid delay by removal of a gland early in the diagnostic procedures. This may be done more safely after preliminary irradiation, especially when lymphosarcoma is suspected. Differentiation may have to depend on the degree of radiosensitivity of the mediastinal tumor. The radiosensitivity would probably range progressively from Hodgkin's disease, lymphatic leukemia and lymphosarcoma to tuberculous lymphoma.

Diagnosis of Idiopathic Steatorrhea.—From a study of the x-ray signs in six cases of idiopathic steatorrhea, Kantor points out that the characteristics in the small intestine are the "moulage sign," dilatation and segmentation; in the colon dilatation and redundancy; in the gallbladder a faint filling, and in the bony skeleton osteoporosis, deformity and dwarfism. These signs are not all present in every case but vary in their degree and distribution depending on the activity of the disease and the constitution of the individual. The changes in the small intestine are most apparent in the jejunum. These consist of variations in tone, caliber and motility and particularly in the diminution or complete disappearance of the distinctive valvulae conniventes. The term "moulage sign" calls attention to the striking appearance of the upper jejunum when the valvulae conniventes are missing and the lumen is filled smoothly as though wax had been poured into it. Since this peculiar appearance seems to vary directly with the intensity of the steatorrhea, the sign may have practical value in both diagnosis and prognosis. Idiopathic steatorrhea is probably the only form of grave chronic diarrhea in which the colon is dilated instead of contracted.

Archives of Neurology and Psychiatry, Chicago

41: 1087-1276 (June) 1939

Disseminated Encephalomyelitis: Histologic Syndrome Associated with Thrombosis of Small Cerebral Vessels. T. J. Putnam and L. Alexander, Boston.—p. 1087.
Influence of Blood Sugar Level on Wave and Spike Formation in Petit Mal Epilepsy. F. A. Gibbs, E. L. Gibbs and W. G. Lennox, Boston. —p. 1111.
Arm to Carotid Circulation Time in Abnormal Mental States. J. S. Gottlieb, Iowa City.—p. 1117.
Blood Choline Esterase in Myotonia Congenita and Myasthenia Gravis. H. G. Poncher and Helen W. Wade, Chicago.—p. 1127.
Studies in Diseases of Muscle: VIII. Metabolism of Calcium, Phosphorus and Magnesium in Progressive Muscular Dystrophy, Myotonia Atrophica and Familial Periodic Paralysis. A. T. Milhorat and V. Toscani, New York.—p. 1130.
*Effect of Benzedrine Sulfate and Phenobarbital on Behavior Problem Children with Abnormal Electro-Encephalograms. Katharine K. Cutts and H. H. Jasper, East Providence, R. I.—p. 1138.
Etiologic Factors in Experimentally Produced Pontile Hemorrhages. L. V. Dill and C. E. Isenhour, Durham, N. C.—p. 1146.
Alterations in Response to Visual Stimuli Following Lesions of Frontal Lobe in Monkeys. Margaret A. Kennard, New Haven, Conn.—p. 1153.
Conscious Inability to Synthesize Thought in a Case of Right Frontal Tumor and Lobectomy: Anatomic Considerations Concerning the Neurons of Intellect. R. M. Brickner, New York.—p. 1166.
Occurrence and Distribution of Calcified Plaques in Spinal Arachnoid in Man. R. Y. Herren, Boston.—p. 1180.
Pinealomas. A. H. Baggenstoss and J. G. Love, Rochester, Minn.—p. 1187.
Anatomic Relations of Cerebral Vessels and Perivascular Nerves. S. P. Humphreys, Montreal.—p. 1207.
Vitamin Studies in Cases of Diabetic Neuritis. W. Needles, New York. —p. 1222.
Serologic Reactions in Schizophrenia: Prognostic Value. W. L. Sharp, Anderson, Ind.—p. 1229.

Amphetamine Sulfate in Behavior Problems.—Cutts and Jasper believe that their study of twelve behavior problem children with abnormal electro-encephalograms clarifies the disorder in a specific group of children who have been called epileptoid because of personality characteristics and electroencephalograms similar to those of epileptic patients. In about half the cases in this group there appears to be a more specific disorder, identified by a favorable response to amphetamine and the presence of a prominent six cycle rhythm in the electroencephalogram. This group of cases probably represents the same disorder in children as that described as "psychomotor epilepsy" in adults, in whom it was found that phenobarbital tends to increase rather than to decrease the number and

severity of the attacks. The changes in personality with amphetamine are probably due to an alteration in the patient's emotional reactions to the type of brain disorder revealed in the electro-encephalogram without any fundamental change in the disorder itself. Since the brain potentials recorded through the skull are chiefly of cortical origin, the amphetamine may act on subcortical centers which are not closely related to the type of cortical function shown in the electro-encephalogram. This may be suspected from the fact that benzedrine is known to affect particularly the autonomic nervous system. As practically nothing is known at present regarding the cause or origin of the six cycle rhythm, which seems to be the main abnormality in these patients, the authors think that further speculation is not justified at present.

Archives of Physical Therapy, Chicago

20: 257-320 (May) 1939

Medical, Hospital, Cooperative, Industrial and Economic Aspects of Radio Reception and Interference. F. H. Krusen, Rochester, Minn.; M. T. MacEachern, Chicago; A. U. Desjardins, Rochester, Minn., and A. W. Mathis, Chicago.—p. 262.
Present Status of Hearing Aid Problem. H. Newhart, Minneapolis.—p. 269.
Recent Trends Concerning Importance of the Audiometer in Otology. G. H. Mundt, Chicago.—p. 277.
Cancer of Head and Neck: Management of Lesions with Borderline Operability and Curability. E. N. Kime, Indianapolis.—p. 282.
Roentgenotherapy of Endocrinopathies. J. H. Hutton, Chicago.—p. 287.
X-Ray Therapy in Otolaryngologic Infections. A. F. Tyler, Omaha.—p. 294.

Bulletin New York Academy of Medicine, New York

15: 289-356 (May) 1939

Diagnostic Significance of Changes in Red Cells. R. L. Haden, Cleveland.—p. 291.
Polycythemia. P. Reznikoff, New York.—p. 311.
Chronic Gastritis. R. Schindler, Chicago.—p. 322.
Modern Treatment of Schizophrenia. K. M. Bowman, New York.—p. 338.

Canadian Medical Association Journal, Montreal

40: 423-534 (May) 1939

*Physiologic Studies in Experimental Asyphyxia and Drowning. D. W. Lougheed, J. M. Janes and G. E. Hall, Toronto.—p. 423.
Common Conditions of Neck of Female Bladder and Urethra. D. W. MacKenzie and M. I. Seng, Montreal.—p. 428.
Role of Radiology in Diagnosis and Treatment of Primary and Secondary Lesions of Carcinoma of Breast. W. A. Jones and R. C. Burr, Kingston, Ont.—p. 433.
Thiobarbiturates in Obstetrics: Pentothal and Thioethamyl. W. Bourne and A. J. Pauly, Montreal.—p. 437.
Dangers of Employing Thorium Dioxide Solution in Mammography. D. C. Collins, Los Angeles.—p. 440.
Importance of Detection and Evaluation of Early Hypertension. H. M. Harrison, Toronto.—p. 442.
*Overtreatment in Syphilis. F. E. Cormia, Montreal.—p. 445.
Tumors of Spinal Cord: Diagnosis and Treatment. A. W. Adson, Rochester, Minn.—p. 448.
Investigation of the Jaundiced Patient. H. B. Moffatt, Ottawa, Ont.—p. 454.
Psychogenic Disorders in Childhood Which Simulate Organic Disease. W. A. Hawke, Toronto.—p. 457.
Mortality of Appendicitis. A. R. Munroe, E. S. Hoare and Ella Cristall, Edmonton, Alta.—p. 463.
Role of Dietetics in Dermatology, Including Discussion of Cutaneous Manifestations of Food Allergy. G. S. Williamson, Ottawa, Ont.—p. 470.
Carcinoma of Breast in Ukrainian Women. M. A. R. Young, Lamont, Alta.—p. 476.
*Lead Poisoning from "Canned Heat." L. D. Wilcox, London, Ont.—p. 479.
Spontaneous Lymphomatosis in a Mouse of the Dilute Brown Strain. C. S. McEuen and T. R. Waugh, Montreal.—p. 481.

Asphyxia and Drowning.—Lougheed and his colleagues report further studies on experimental drowning and asphyxia. Their preliminary study was abstracted in THE JOURNAL Oct. 15, 1938, page 1505. From their present experiments they recommend certain resuscitative measures as a basis for the treatment of apparently drowned persons. The same measures may be of value in the treatment of patients suffering from other acute asphyxial conditions. All foreign matter should be removed from the mouth, larynx and pharynx. In the cases of drowning the body should be gently lifted up by the waist, to allow as much water as possible to drain from the stomach and lungs. The body should then be placed in the prone position with the head and chest lower than the rest of the body if at all possible. With the head of the patient slightly retracted and lying on one side, the Schafer method of artificial respiration should be started at once. There should be a free passage of air into and out of the chest. To facilitate this the tongue should be pulled forward, and if the passage of air cannot be heard the introduction of a tracheal catheter is almost essential. When the catheter has been passed, initial suction on this tube should remove much of the foam filling the trachea and bronchi. Since insufflation of the lungs with 5 per cent carbon dioxide and 95 per cent oxygen is valuable in artificial respiration in experimental asphyxia, the procedure might be used to advantage in cases of drowning. The gas mixture can be passed into the lungs through the tracheal catheter, the excess air on forced expiration readily escaping through the glottis around the catheter. If special apparatus is not to be had, a pearl of amyl nitrite may be crushed and held over the open end of the tracheal catheter during the inspiratory phase of the artificial respiration. After two or three whiffs of this the administration of the carbon dioxide-oxygen mixture is recommenced at a rate of about 3 liters per minute. Prompt, adequate and prolonged artificial respiration is the fundamental treatment for drowned, asphyxiated or electrocuted persons.

Overtreatment in Syphilis.—During the last few years Cormia encountered five instances of well defined overtreatment in patients receiving combined neoarsphenamine and preparations of bismuth. The gradual development and insidious nature of the symptom complex make it particularly susceptible to misinterpretation, and many patients have been precipitated into actual mental or physical breakdown by the persistence of misguided therapeutic measures. Three patients illustrating this syndrome complained of nervous irritability. It was evinced as an exaggerated response to external stimuli, uncontrollable temper, general emotional instability, minor lapses of memory and a persistent insomnia. Diffuse, throbbing headaches, a not infrequent manifestation of bismuth intolerance, were consistently present. The depressing influence of the bismuth therapy was clearly shown by the general symptoms of fatigue, weakness and loss of weight. All the patients were physically below par and complained of persistent malaise even while resting from their regular occupations. Since this depressing effect is rarely observed when bismuth compounds alone are given, it is reasonable to assume that it is due to the prolonged administration of both arsenic and bismuth compounds. In the fifth patient and to a lesser degree in the fourth one the arsenical factor in therapy, resulting in a toxic hepatitis, was in a large measure responsible for the general depressing effects. Loss of appetite, a varying degree of chronic dyspepsia and constipation were present in all five patients. In the last two patients this was in part referable to specific hepatic damage from arsenic, but in the remainder such involvement, if present was subclinical. Nervous system hyperirritability, with sympathetic reflex changes, could not be eliminated as a factor in the gastrointestinal stasis. There was no definite evidence of spasticity in the one patient in whom a barium sulfate study of the gastrointestinal tract was made. Three of the five patients were distressed by a chronic nonproductive cough. This occurred in the absence of any signs of chronic bronchitis and aneurysmal pressure. Chronic cough may possibly represent a combined action of both arsenic and bismuth or to some degree a secondary mild infection dependent on lowered general resistance. The fourth patient suffered from a chronic dermatitis which was undoubtedly precipitated by the prolonged administration of bismuth compounds. The previous excellent general health and splendid physique of this patient may have been a factor in the absence of other cumulative effects from the prolonged antisyphilitic treatment. It should be recalled that the arsphenamines, when given in short courses and in relatively small dosage, have a well recognized tonic and nonspecific stimulating effect. When large doses are given over prolonged periods the reverse is true and the effect is one of chronic depression. Nervous irritability is undoubtedly an integral part of this depressive or cumulative toxic action.

Lead Poisoning from "Canned Heat."—Wilcox saw six cases of severe poisoning among alcoholic addicts who made a practice of drinking "canned heat." Two of the patients have drunk this for more than twenty years. On investigating the authors found that no bad effects accrued from the original fractions of the mixture. The danger seemed to lie in the

contamination of the contents by lead going into solution from the containers. Four of the six patients presented a picture of lead encephalopathy. Three of them died. The other patient made an excellent recovery from a severe encephalopathy without deleading measures or adherence to a special diet.

Illinois Medical Journal, Chicago

75: 381-480 (May) 1939

Evaluation of Newer Treatments of Dementia Praecox. D. L. Steinburg, G. Heilbrunn and E. Liebert, Elgin.—p. 405.
Medical Care for All the People. R. K. Packard, Chicago.—p. 410.
The Importance of the Business Meeting. R. T. Pettit, Ottawa.—p. 413.
The New Deal in Medicine. L. Clendening, Kansas City, Mo.—p. 416.
Value of Suppository Medication in Anorectal Conditions. L. E. Bovik, Waukegan.—p. 419.
Postgraduate Medical Education for Illinois. F. G. Norbury, Jacksonville.—p. 422.
Treatment of Weak Feet (Pes Valgus). J. Graham, Springfield.—p. 425.
Types of Skin Grafts and Their Individual Application. P. W. Greeley, Chicago.—p. 436.
Chronic Fibroplastic Encapsulating Peritonitis with Complications. T. B. Bondus, Chicago.—p. 442.
Some Uses of Picratol (Silver Picrate), with Special Reference to Chronic Otitis Media: Supplementary Report. V. R. Vanstane, Chicago.—p. 444.
Psychoses in Children. Irene C. Sherman, Chicago.—p. 446.
Résumé of Sulfanilamide Treatment of Peritonsillar Abscess: Report of Two Cases Combined with Nonspecific Protein Therapy. B. Sonenschein, Martinsville.—p. 450.
Cranial Nerve Disturbances Due to Arteriosclerosis of Intracranial Arteries. R. R. Grinker and J. Reich, Chicago.—p. 453.
Chancres of Cervix. I. S. Schipper, Galesburg.—p. 457.
Role of Vitamins in Ophthalmology. Helen Holt, Chicago.—p. 458.
Cesarean Section: Analysis and Discussion. W. C. Stude, St. Louis.—p. 463.
*Vitamin B_1 in Alcoholic Polyneuritis: Report of Forty-Eight Cases. A. J. McGee, Dwight.—p. 470.
Infection, Arthritis and Allergy with an Allergic Dietary Regimen. L. C. Boemer, St. Louis.—p. 474.

Vitamin B_1 in Alcoholic Polyneuritis.—McGee states that in a group of twenty-five patients with alcoholic polyneuritis treated by subcutaneous hypodermic injection of vitamin B_1 (thiamin chloride) and a control group of twenty-three patients receiving only the vitamin B_1 contained in the diet there was practically no difference in the time required for complete alleviation of symptoms. The severity of the symptoms and the time required for recovery seem to be directly proportional to the duration of the neuritis. Of the severe cases subjective relief was obtained in the group treated with vitamin B_1 in an average of 10.4 days and in the control group in eighteen days. In the moderately severe cases in the treated group complete relief of all symptoms was obtained in an average of 6.1 days and in the control group in 6.5 days. In the mild cases in the treated group complete relief occurred in an average of 4.3 days and in the control group in 4.5 days. There were no cases in either group that failed to show improvement.

Journal of Allergy, St. Louis

10: 317-416 (May) 1939

Electrokinetic Phenomena: XIV. Inactivation of Ragweed Pollen Extracts by Adsorption and Electric Charge of Resultant Surface. H. A. Abramson, A. M. Sookne and L. S. Moyer, New York.—p. 317.
Allergy to Grain Dusts and Smuts. L. H. Harris, Elyria, Ohio.—p. 327.
Analysis of Comparative Results of Skin Testing with Cooked and Uncooked Foods: Preliminary Report. J. I. Malkin and H. Markow, Brooklyn.—p. 337.
*Studies in Gastrointestinal Allergy: Allergy in Pathogenesis of Peptic Ulcer. I. Ehrenfeld, A. Brown and M. Sturtevant, New York.—p. 342.
Bilharzial Asthma: New Type of Allergic Bronchial Asthma. F. Mainzer, Alexandria, Egypt.—p. 349.
Role of Allergy in Bronchiectasis. S. H. Watson and C. S. Kibler, Tucson, Ariz.—p. 364.

Gastrointestinal Allergy.—Ehrenfeld and his associates studied seventy-five persons with proved peptic ulcer for evidences of allergic manifestations and seventy-two definitely allergic individuals for the presence of ulcer. Eight of the persons with proved peptic ulcer were found to be allergic. Four of the definitely allergic patients had peptic ulcers. This is well within the incidence of peptic ulcer for the general population. It is concluded that allergy is not a significant factor of peptic ulcer and that peptic ulcer is not of increased frequency in allergy. Nineteen allergic patients presented symptoms which could be mistaken for that of an ulcer syndrome. On repeated x-ray studies of the stomach and duodenum, eight of these showed transient spastic phenomena without a demonstrable niche. Gray has described an ulcer-like complex as a result of an autonomic mechanism initiated by tobacco smoking or a focus of irritation, such as chronic appendicitis or renal calculi. The data suggest that an allergic process can explain the occurrence of a clinical entity closely resembling an ulcer. Among the seventy-two allergic subjects there were eight cases of urticaria or angioneurotic edema, half of these showed spastic changes in the stomach and duodenum. A fifth patient of the urticaria group had a duodenal ulcer. This lends support to the explanation of Demel that gastrointestinal allergy is due to an angioneurotic edema-like reaction and that the localized spasm demonstrated in the roentgenogram may be due to, or associated with, the presence of a wheal.

Journal of Immunology, Baltimore

36: 339-488 (May) 1939. Partial Index

*Vaccination Against Typhus Fever with the Zinsser-Castaneda Vaccine. F. Veintemillas, Mexico City.—p. 339.
Group Specific Agglutinins in Rabbit Serums for Human Cells: V. Inheritance of the A Character. K. M. Wheeler, P. B. Sawin and C. A. Stuart, Providence, R. I.—p. 349.
Nonspecific Factors in Resistance: IV. The Problem of Common Cold. A. Locke, Pittsburgh.—p. 365.
Antigenic Structure of Hemolytic Streptococci of Lancefield Group A. S. Mudd, H. Pettit, D. B. Lackman and Isabel M. Morgan, Philadelphia.—p. 381.
Sensitization and Antibody Formation in Monkeys Injected with Tubercle Bacilli in Paraffin Oil. J. Casals and J. Freund, New York.—p. 399.
Production in Experimental Animals of Antibodies to Short Ragweed Pollen (Precipitation, Complement Fixation and Anaphylaxis). H. Eagle, C. E. Arbesman and W. Winkenwerder, Baltimore.—p. 425.
*Presence in Rabbit Antiserums versus Ragweed Pollen of Skin-Sensitizing Antibodies Passively Transferable to Man. W. L. Winkenwerder, H. Eagle and C. E. Arbesman, Baltimore.—p. 435.
*Passive Sensitization of Human Skin by Serum of Experimentally Sensitized Animals. W. B. Sherman, A. Stull and S. F. Hampton, New York.—p. 447.
Combined Therapy of Pneumococcic Rat Infections with Rabbit Antipneumococcus Serum and Sulfapyridine (2-Sulfanilyl Aminopyridine). H. M. Powell and W. A. Jamieson, Indianapolis.—p. 459.
Quantitative Studies on Neutralization of Pathogenic Agents in Tissues by Circulating Antibodies: V. Coefficients of Distribution of Horse and Rabbit Serum Diphtheria-Antitoxins Between Blood and Skin. U. Friedemann, B. Zuger and A. Hollander, Brooklyn.—p. 467.
Investigations on Pathogenesis of Tetanus: I. Permeability of Central Nervous System Barrier to Tetanal Toxin: Passive Immunity Against Toxin Introduced by Various Routes. U. Friedemann, B. Zuger and A. Hollander, Brooklyn.—p. 473.

Vaccination Against Typhus Fever.—Veintemillas finds that the formaldehyde-killed suspensions of Mexican rickettsiae prepared according to the methods of Zinsser and Castaneda have evident protective power against typhus infection, as proved by experiments in men and laboratory animals. Twelve persons who had not had a previous typhus infection were vaccinated and subsequently inoculated with large doses of typhus material obtained from infected guinea pigs and in none of them did the disease develop. It was found necessary to inject at least three doses of vaccine in order to protect guinea pigs against nonorchitic Mexican strains, whereas it was easy to immunize these animals with a single dose of vaccine against the orchitic typhus. The apparent immunologic differences between orchitic and nonorchitic Mexican strains are the same as those observed between murine and European typhus.

Skin-Sensitizing Antibodies.—Winkenwerder and his colleagues show that precipitating and complement fixing antibodies to short ragweed pollen can be regularly produced in rabbits by intra-abdominal, subcutaneous, intravenous or intracutaneous injections of the pollen extract. Sixteen of twenty-nine of these antiserums produced in rabbits by the injection of various extracts of short ragweed pollen contained specific ragweed skin sensitizing antibodies passively transferable to man. There was no regular correlation between the precipitin content of the serum and its ability to sensitize the human skin. Defatting the pollen or grinding it in a ball-mill had no apparent effect on its ability to excite the production of skin sensitizing antibodies. Although there was some indication that antiserums of animals injected intravenously may contain less of this antibody than those injected subcutaneously or intra-abdominally, further work will be necessary to establish this point.

Passive Sensitization of Human Skin.—According to Sherman and his co-workers, six of twelve serums from guinea pigs sensitized from two to four months previously by a single injection of alum-precipitated pollen-extracts passively sensitized normal human skin. In no case was the intensity of the reac-

tion as great as that produced by serums of acutely sensitive human beings. None of the serums of animals bled less than two months after a similar injection passively transferred sensitivity to human skin. Precipitins could be demonstrated in only one of these serums. Of two anti-horse rabbit serums, both containing precipitins in high titer, one passively sensitized human skin to horse serum while the other did not. The passive sensitivity of skin was shown to be specific, both by testing with other antigens and by neutralization with the homologous antigen.

Journal of Pediatrics, St. Louis

14: 559-694 (May) 1939

Influence of the Menstruum on Effectiveness of Vitamin D Obtained from Livers of the Percomorphi Order of Fish. J. M. Lewis, New York.—p. 559.
Metabolic Observations on Child with Essential Hyperlipemia. S. S. Bernstein, H. H. Williams, Frances C. Hummel, Marion L. Shepherd and Betty Nims Erickson, Detroit.—p. 570.
Acute Rheumatic Fever: Significance and Treatment of Various Manifestations. Helen B. Taussig, Baltimore.—p. 581.
Infantile Scurvy: Part II. Studies on Concentration of Ascorbic Acid in Tissues. T. H. Ingalls, Boston.—p. 593.
Ayerza's Disease. E. E. Smith, Cleveland.—p. 602.
*Physical Strength of Adolescent Girls. Helen Brenton Pryor and Ruth Tangier Smith, Stanford University, Calif.—p. 610.
Pleomorphous Cell Lymphosarcoma of Thymus: Report of Case in Infant Aged 2½ Months. J. L. Rogatz, New York.—p. 618.
Dermatorrhexis (Ehlers-Danlos Syndrome). C. H. Smith, New York.—p. 632.
*Role of Heredity in Stuttering. Severina E. Nelson, Urbana, Ill.—p. 642.
*Prophylaxis of Complications of Scarlet Fever. P. M. Hamilton and Y. Togasaki, Los Angeles.—p. 655.
Hypertrophic Pyloric Stenosis in Twins. T. A. Card, Riverside, Calif.—p. 658.
Acute Bronchiectatic Abscesses Simulating Empyema: Report of Three Cases. R. R. Shaw, Dallas, Texas.—p. 661.
Vascular Birthmarks: Diagnosis and Treatment. F. Young, Rochester, N. Y.—p. 671.

Physical Strength of Adolescent Girls.—Pryor and Smith measured the physical strength of 100 adolescent girls every six months for a period of seven years, that is from 10 to 17 years of age. Right and left hand grip were averaged with pushing and pulling scores and plotted against age. Strength increased with age for the total group from 10 to 15½ years, after which the curve flattened. When curves for strength tests were plotted in three groups according to body build, a marked difference was demonstrated between broad and slender girls. Broad girls were shown to possess consistently superior physical capacity by this standard when compared to slender girls through the adolescent period. Broad and slender body builds appeared to represent definite and distinct endocrine patterns.

Heredity in Stuttering.—Nelson compared the lineage histories of 204 stutterers with those of 204 nonstutterers. The subjects of both groups were matched in age and sex. Those belonging to the stuttering group were selected only because they stuttered; those belonging to the control group were selected because they spoke normally and had no history of stuttering. Additional information was secured from grandparents, aunts, uncles and friends. The trend of the data seems definitely to indicate that there must be some biologic tendency to stutter. The conclusions pointing to that tendency are as follows: A greater percentage of stutterers who have ancestral pedigrees of stuttering began to stutter when they were learning to speak, while a greater percentage of the stutterers whose pedigrees show no ancestral stuttering began to stutter after the onset of speech. There is a constant ratio in favor of the greater incidence of diseases and other precipitating factors occurring at the incidence of stuttering among stutterers whose pedigrees show no ancestral stuttering than among stutterers whose pedigrees show ancestral stuttering. Many of the stutterers with pedigrees of ancestral stuttering show a history of no diseases or other precipitating factors coincident with the onset of speech and stuttering, as compared with the percentage of stutterers with pedigrees with no ancestral stuttering. The manner and character of the accidents, frights and diseases are more violent and more severe among those stutterers having pedigrees of no stuttering than among stutterers showing stuttering in their ancestry.

Prophylaxis for Scarlet Fever Complications.—Hamilton and Togasaki believe that pooled human convalescent serum offers an entirely safe and highly effective method of treating scarlet fever and also that it is of great value in reducing the incidence of complications. Sulfanilamide, though of little or no value in the disease itself, offers comparable protection from complications with little risk. Because of its cheapness and availability they think it may become important in the therapy of scarlet fever. The authors state that they will report later on the value of the two methods in combination.

Medical Annals of District of Columbia, Washington

8: 127-160 (May) 1939

Observations on Use of Sodium Salt of Sulfapyridine: Preliminary Report. H. F. Dowling and T. J. Abernethy, Washington.—p. 127.
*Meningococcic Meningitis: Report of Twenty-Seven Cases Treated with Serum and Sulfanilamide. E. P. Campbell, Washington.—p. 132.
Harrison Narcotic Act and Narcotic Drug Addiction. A. L. Tennyson, Washington.—p. 136.
Aplastic Anemia Due to Kerosene: Report of Case. J. R. Cavanagh and P. R. Wilner, Washington.—p. 140.
Pernicious Anemia Terminating in Agranulocytosis: Report of Case. C. Goldenberg, Washington.—p. 145.

Meningococcic Meningitis.—Campbell gives the essential features of the twenty-seven interepidemic cases of meningococcic meningitis admitted to the Walter Reed General Hospital from October 1935 to November 1938. The treatment given the twenty-seven cases consisted of antimeningococcus serum, antitoxin and sulfanilamide. Serum was administered intravenously and intraspinally immediately after the necessary sensitivity tests had been performed. Soon after the first spinal drainage, 100 cc. of serum diluted with 200 or 300 cc. of physiologic solution of sodium chloride was given slowly intravenously. The average amount of serum given in this manner to twenty-two patients was 221 cc., with extremes of 45 and 705 cc. Intraspinal serum was given warmed, undiluted, by the gravity method and in amounts of from 5 to 10 cc. less than the quantity of spinal fluid withdrawn. Intrathecal serum was given to eighteen patients in an average total amount of 106 cc., with extremes of 15 and 340 cc. Antitoxin was given to three patients before they were admitted to the hospital. Sulfanilamide was administered to seven patients in an average total dose of 32.5 Gm., with extremes of 9 and 60 Gm. Five were given both serum and sulfanilamide, while two were given sulfanilamide alone. One of the former group died after receiving 14.5 Gm. of sulfanilamide and 100 cc. of serum. A subarachnoid block developed. Sulfanilamide is best employed by mouth if the patient is not vomiting. Otherwise it can be given subcutaneously as outlined by Schwenkter. There were thirty-six complications in the entire series, including deafness, transient sixth and seventh nerve paralyses, arthritis, optic neuritis, paraplegia, endocarditis, subarachnoid block and panophthalmitis. Five deaths occurred, two from acute fulminating meningococcemia and one from status thymicolymphaticus. The author believes that the most effective form of treatment was intravenous and intraspinal antimeningococcus serum in conjunction with oral and/or subcutaneous sulfanilamide.

Radiology, Syracuse, N. Y.

32: 521-650 (May) 1939

*Bone Changes in Primary Hypogonadism. L. M. Hurxthal and H. F. Hare, Boston.—p. 521.
Physical Measurements on Roentgen Radiation from Tube Actuated by Van de Graaf Generator. J. C. Hudson, Boston.—p. 530.
Recovery Following Human Ovarian Irradiation. H. W. Jacox, Pittsburgh.—p. 538.
Plea for More Frequent Use of Lateral Roentgenogram in Diagnosis of Pregnancy. M. J. Hubeny and P. J. Delano, Chicago.—p. 546.
Computation of Dimensions in Planigraphy with Mathematical Instruments. D. H. Drummond and W. W. Schmela, Omaha.—p. 550.
Planigraphy—Its Application to Thoracic Diagnosis. W. E. Howes, Brooklyn.—p. 556.
Myosarcoma of Stomach: Report of Two Cases. L. G. Allen and P. E. Hiebert, Kansas City, Kan.—p. 567.
*Joint Changes in Hemophilia. N. B. Newcomer, Denver.—p. 573.
Measurement of Tissue Dosage in Radiation Therapy. Edith H. Quimby, New York.—p. 583.
Dosage Measurements by Simple Computations. H. M. Parker, Manchester, England.—p. 591.
Aloe Vera in Treatment of Radiation Ulcers of Mucous Membranes. F. B. Mandeville, Richmond, Va.—p. 598.
Diagnosis of Unusual Calcareous Shadows Found on X-Ray Films of Abdomen. Cassie Belle Rose, Boulder, Colo.—p. 600.

Bone Changes in Primary Hypogonadism.—The changes considered to be characteristic of primary prepuberal hypogonadism are listed by Hurxthal and Hare in the order of their importance: (1) a tendency to longer bone growth, (2) delayed epiphysial closure, (3) subcalcification, (4) thinning of

the cortical layer, (5) thin-walled, normal-sized trabeculation and (6) roughening of the metaphysial margin of growing bone. It is likely that these changes may not be present in later decades of life, as there is evidence in most cases of some gonad secretion, which, over a long period, brings about closure of the epiphyses. These changes may be differentiated from endocrine osseous changes seen in pituitary acromegaly and gigantism, prepuberal myxedema and prepuberal pituitary dwarfism or infantilism. Seven cases of typical primary prepuberal hypogonadism are presented and by way of comparison two cases of postpuberal hypogonadism in young women are cited.

Joint Changes in Hemophilia.—Newcomer maintains that the fact that characteristic changes in the joint occur in at least 80 per cent of hemophilic patients is not generally recognized by the medical profession. There are really two stages: (1) acute hemorrhage into the joint and (2) the chronic stage, in which changes in the joint are produced by these hemorrhages. Hemophilia as a causative agent in both acute and chronic disease of the joints should be carefully considered. The author reports three cases in which surgeons have repeatedly suggested or attempted operations, not realizing that the joint changes were due to hemophilia. Quite often these changes are diagnosed as due to tuberculosis or arthritis and may even go to operation before it is discovered that the patient has hemophilia. Even when the patient is known to have hemophilia, the physician may not realize that the articular condition is due to hemorrhages into the joint but may think it is due to some infection and advise removal of the teeth, tonsils and the like. Failure to diagnose such a case may be fatal to the patient. Contractions of the arm and wrist, from hemorrhage into the muscles, have been reported. One of the author's patients had this condition in both the forearm and the wrist. Hemorrhages into the hip are reported as uncommon, but Thomas reports them in 16 per cent of his cases. In two of the present three cases there were hemorrhages into the hip. Both patients were adults, but no changes are shown in the roentgenograms. When such hemorrhages occur before maturity, they produce changes resembling Perthes' disease.

Southwestern Medicine, El Paso, Texas

23: 139-170 (May) 1939

Medical Care in New Mexico. G. T. Colvard, Deming, N. M.—p. 139.
Bronchography in Diagnosis of Pulmonary Disease. V. S. Randolph, Phoenix, Ariz.—p. 140.
Appendical Abscess Producing Obstruction of Sigmoid Colon. E. J. Kilfoy, Los Angeles.—p. 143.
Indications for Cesarean Section. J. L. Green, El Paso, Texas.—p. 146.
Extrapleural Pneumothorax in Treatment of Phthisis. J. C. Jones, Los Angeles.—p. 148.
Retrobulbar Neuritis. L. F. Morrison, San Francisco.—p. 153.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

47: 243-296 (May) 1939

Mechanism of Exophthalmic Goiter. G. Crile, Cleveland.—p. 243.
Right "Paraduodenal Hernia"; Surgical Repair; Recovery: Case Report. D. C. Collins, Los Angeles.—p. 250.
The Cerebellum: A New Interpretation. O. Larsell and R. S. Dow, Portland, Ore.—p. 256.
Quantitative Approach to Study of Thyroid Secretion Process. E. Uhlenhuth, K. Mech, J. U. Thompson and J. E. Schenthal, Baltimore.—p. 263.
*Congenital Factors in Thyroid Disease. W. B. Patterson, Danville, Pa.—p. 273.
Surgical Approach to Hypertension: Division V. F. M. Findlay, San Diego, Calif.—p. 277.

Congenital Factors in Thyroid Disease.—Patterson states that the various types of goiter have been produced in experimental animals by varying the iodine intake and the physiologic requirements of the gland. Hypothyroidism and hyperthyroidism likewise have been produced. The experiments suggest that, when hypothyroidism is present in the mother, she will absorb thyroxine from her fetus for her own use, leaving the fetus hypometabolic. The fetal thyroid in turn reacts by hyperplasia to produce sufficient thyroxine for its own metabolism. Therefore he believes that there are two major etiologic factors in the production of congenital goiter: (1) an iodine deficiency and (2) fetal thyroid hyperplasia caused by maternal absorption of fetal thyroxine. Damage to the thyroid before birth lays the foundation for the development of goiter later in life, depending on iodine ingestion and physiologic requirements.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

33: 73-124 (April) 1939

Some Observations on Tuberculomas of Brain. C. P. G. Wakeley.—p. 75.
Primary Tuberculosis of Lung in Children. A. Margaret C. Macpherson.—p. 79.
Some Points in Oxygen Therapy. K. Robson.—p. 92.
*Pulmonary Tuberculosis Following Serofibrinous Pleurisy. L. Schneider.—p. 96.
Clinical Note on Paralysis of Diaphragm and Thoracoplasty in Adult Pulmonary Tuberculosis. F. Cardis and A. Gilliard.—p. 104.
Treatment of Surgical Tuberculosis in Adults. M. Forrester-Brown.—p. 107.

Tuberculosis Following Pleurisy.—Schneider believes that acute pleurisy with effusion uncomplicated by pulmonary lesions should be considered of tuberculous origin in nearly every case, and, like pulmonary tuberculosis, the majority of these cases occur in youth and early maturity. In a typical instance the patient is acutely ill for several weeks or a month or two but almost always recovers his health, at least temporarily, on the absorption of the fluid. It is safe to conclude that the sudden occurrence of an effusion in a young person who has been previously well, and which cannot be attributed to pneumonia, infarct, rheumatic fever, blood dyscrasias, the congestion of heart disease or the transudation in kidney disease, is undoubtedly due to tuberculosis whether tubercle bacilli are or are not found in the fluid. Although it is believed that the most dangerous period after pleurisy is the five years immediately following, pulmonary tuberculosis developed in two of the author's patients seven years after the effusion, and in Kallner's series it was diagnosed eleven, twelve, fourteen and sixteen years later. The mortality from the later pulmonary disease is from 20 to 25 per cent. Kallner points out that, of 605 patients with pulmonary tuberculosis treated at his hospital, 19 per cent had pleurisy before pulmonary tuberculosis developed, while Fishberg, from a compilation of statistics, concluded that between one third and one half of the patients receiving treatment for pulmonary tuberculosis had had pleurisy before symptoms referable to their lungs manifested themselves. It would appear that present concepts of after-treatment of so-called idiopathic pleurisy may have to be changed to prevent in future the present needlessly high tuberculous morbidity. The author suggests that artificial pneumothorax should be instituted on the side affected by the pleurisy and maintained for a number of years if possible as a means of preventing the subsequent development of pulmonary tuberculosis, which almost invariably affects the lung underlying the effusion. Every case of pleurisy should be considered one of potential tuberculosis unless some other cause for the effusion is found. These patients should receive the same repeated observations, from the public health standpoint, as those with pulmonary tuberculosis.

British Medical Journal, London

1: 809-856 (April 22) 1939

Modern Principles of Treatment in Bronchiectasis: Based on 199 Cases Treated by Lobectomy or Total Pneumonectomy. A. T. Edwards.—p. 809.
Pellagra: Pathologic Changes in Spinal Cord: Case. J. G. Greenfield and J. M. Holmes.—p. 815.
Metastatic Renal Infection. T. Moore.—p. 819.
Sturge's Disease. A. M. Nussey and H. H. Miller.—p. 822.
*Comparative Study of Tuberculin "Patch Test" and the Intracutaneous Mantoux Test in Childhood. D. Court.—p. 824.
*Diagnostic Value of Intradermal Tuberculin Test in Children. D. B. Bradshaw.—p. 825.

Comparison of Tuberculin Tests.—Court tested two groups of children by the tuberculin patch test and the intracutaneous Mantoux test. The first group of 110 children were tested in a routine manner without regard to age, sex or clinical diagnosis. The ages ranged from 11 months to 12 years. There was no discrepancy between the two methods in this group. The second group consisted of 100 children in whom a positive reaction to 1:1,000 old tuberculin intradermally was established. Comparison with the Vollmer patch test gave 100

Mantoux positive, ninety-eight patch positive and two patch negative. These results agree in the main with those from similar investigations. Some of the advantages of the patch test are that the Mantoux reaction is reliable only if the injection is a true intradermal one, with exact amounts of material. The patch test, on the other hand, demands a minimum of manipulative skill. It obviates yet another of the "pricks" to which children are subjected in these days of increasing investigation. There seems to be no tendency on the part of the child to interfere with the patch once it is applied. Solutions of old tuberculin to be reliable must be renewed at least every two months. However, the patch test material, if kept in a cold dry place, will remain reliable for a year. With the patch test general and focal reactions never occur and necrosing local reactions are unknown. One of the disadvantages of the patch test is that it is slightly less reliable than the intracutaneous method. Therefore in the 2 to 5 per cent of doubtful cases the patch test should be supplemented by the Mantoux, a 1 : 100 dilution being used. The latter, because of its greater range of sensitivity, should be taken as the reliable indicator.

Value of Intradermal Tuberculin Test.—Bradshaw performed 3,010 intradermal tuberculin tests, using 1 : 1,000 tuberculin. He states that an analysis of these tests suggests that the diagnostic value of the test is underrated, especially in older children. The test enables a diagnosis of tuberculosis to be excluded in three out of four "suspect" cases in children up to 8 years of age, and in one half of those from 10 to 12 years of age.

J. Royal Inst. Public Health and Hygiene, London

2: 203-268 (April) 1939

Physical Training in the Army. A. R. Ross.—p. 230.
Intestinal Tuberculosis. J. Maxwell.—p. 238.
The New Maternity Services from the Point of View of the General Practitioner. J. A. Longworth.—p. 245.
Treatment of Arthritis in the Spa. C. W. Buckley.—p. 250.
The Mediums and Organization of Health Education. W. Savage.—p. 256.
Stammering. B. E. Jackson.—p. 261.

Lancet, London

1: 913-968 (April 22) 1939

Approach to Medicine. Horder.—p. 913.
Surgical Anatomy of Subtentorial Angle, with Special Reference to Acoustic and Trigeminal Nerves. E. P. Stibbe.—p. 918.
*Sulfapyridine in Cerebrospinal Fever: Review of 143 Cases Treated Under Field Conditions. R. B. U. Somers.—p. 921.
Chemotherapy of Cerebrospinal Fever in the Field. J. Bryant and H. D. Fairman.—p. 923.
Anterior Dislocations of Shoulder Joint. C. H. Gray.—p. 926.
*Herpes Zoster and Varicella Simultaneously in the Same Patient. D. G. Ferriman.—p. 930.
Thrombocytopenic Purpura: Report of Case. G. H. Jennings and L. I. M. Castleden.—p. 931.
Further Observations on Similarity of Stilbestrol and Natural Estrogenic Agents. A. Palmer and S. Zuckerman.—p. 933.

Sulfapyridine in Cerebrospinal Fever.—Somers treated 143 cases of cerebrospinal fever with sulfapyridine. All treatments had to be carried out under adverse conditions in dusty grass shelters with insufficient and unskilled (though willing) native staff, and patients received the crudest of nursing and food. The condition of the patient and that of the cerebrospinal fluid were the criteria for the amounts of sulfapyridine injected, and the youngest patients, since they were usually the most seriously ill, received proportionately the largest doses; 1.2 Gm. was the maximum when a watery suspension was used and 3 Gm. when it was combined in an oily suspension. Infants tolerated injections of 0.25 Gm. (in 40 cc. of distilled water) intraperitoneally and 0.5 Gm. intramuscularly. Saline suspensions replaced watery ones and gave less pain. No toxic symptoms followed the injection of sulfapyridine. Herpes labialis seemed to be encountered more often in those receiving large injections. Intraperitoneal injections caused a more rapid general improvement than did intramuscular injections. When possible, lumbar puncture was performed after completion of treatment. In most cases the cerebrospinal fluid became clear before the temperature fell to normal. Arthritis of the large joints and stiffness of the neck usually persisted for some days after the general condition had improved, but they caused little inconvenience to the patients. The usual case mortality of cerebrospinal fever in the Sudan is from 68 to 80 per cent. In the 143 consecutive cases treated with sulfapyridine the case mortality was 10 per cent.

Herpes Zoster and Varicella.—Since the simultaneous occurrence of herpes zoster and varicella in a patient is not common, Ferriman cites such a case. A review in the literature of similar cases indicates that the condition is most common in elderly men, and the appearance of the varicella usually follows the zoster within five days. Such cases support the view that the eruptions are caused by identical or closely related organisms.

Practitioner, London

142: 361-548 (April) 1939

The Acute Abdomen. L. Barrington-Ward.—p. 367.
Juvenile Rheumatism. B. Schlesinger.—p. 375.
Cardiac Murmurs in Childhood. C. B. Perry.—p. 382.
Disorders of Digestion After Infancy. F. M. B. Allen.—p. 395.
Diarrhea and Vomiting. J. F. Ward.—p. 405.
Wasting or Marasmus. A. Moncrieff.—p. 413.
Modern Views on Tuberculosis in Childhood. J. C. Spence.—p. 421.
Acute Lung Conditions, with Particular Reference to Their Treatment in Infants. A. W. Franklin.—p. 429.
Genito-Urinary Disease. T. T. Higgins, D. Nabarro and W. W. Payne.—p. 437.
Anemias of Infancy and Childhood. W. C. Smallwood.—p. 453.
*Some Endocrine Disorders of Childhood. R. W. B. Ellis.—p. 463.
Enlarged Glands in the Neck. Gertrude Herzfeld.—p. 472.
Mental Deficiency in Childhood. N. Hobhouse.—p. 481.
Nervous Children and Modern Treatment. R. Miller.—p. 488.
Poliomyelitis. M. Forrester-Brown.—p. 495.
Some Common Disorders of the Newborn Infant. K. H. Tallerman.—p. 507.
Congenital Syphilis. D. N. Nabarro.—p. 516.
Diet in Health and Disease: XXII. Special Diets in Childhood. W. W. Payne.—p. 525.

Endocrine Disorders of Childhood.—The symptoms for which children with endocrine disorders are likely to come under observation are grouped by Ellis as disturbances of nutrition, growth, development and metabolism. In some instances, psychologic disturbances or mental retardation will first draw attention to an endocrine dysfunction. Fat children are encountered frequently. In some cases the obesity is a matter of great distress, in others it is placidly accepted as evidence of good digestion. In one child it interferes with activity and results in genu valgum; in another it may be associated with robust health, cheerful disposition and full activity. The physician will have to strike the balance between making an un-self conscious child feel abnormal, and making light of the overanxiety and real distress which is often felt by a fat child who has been made a butt. On the basis of the history and physical examination, although the distinctions are by no means rigid, cases can be grouped as (1) primarily exogenous—in which excessive food intake and lack of exercise are the causative factors, (2) primarily endogenous—in which a "personal factor" is suggested by the family history, onset at puberty or normal caloric intake and (3) due to gross endocrine dysfunction (hypothyroidism, hypopituitarism, pituitary basophilism and hyperadrenalism). Cases of this last type are by far the least common. The endocrine disorders liable to cause rapid and extreme wasting in childhood are diabetes mellitus and hyperthyroidism. Pituitary cachexia (Simmonds' disease) and Addison's disease are extremely rare in this age period. Disorders of growth and development include infantilism, cretinism, pituitary infantilism, precocity and virilism. Infantilism may arise from long standing disease of any one vital organ, e. g. kidneys, intestine, heart, lungs or liver, or from generalized infection such as congenital syphilis. There are in addition certain well defined endocrine types. Cretinism represents the most perfect type of infantilism, since not only does the child retain the size and proportions of infancy (as opposed to childhood) but the mental development is correspondingly delayed. There is a varying individual response to treatment. Although every child will show great improvement physically on thyroid administration, the mental improvement may be either complete or negligible. This is not by any means wholly dependent on the age at which therapy is started. Tredgold suggested that this difference in response might well be explained by there being two distinct types of cretinism—one in which there was primary mental defect, with superadded hypothyroidism, and another in which both mental and physical changes were due to a primary hypothyroidism. Gesell, Amatruda and Culotta found that although every cretin

probably makes his optimal individual response if treatment is instituted early, those patients who will ultimately approach mental normality will show an early mental response to treatment and will react best to relatively small doses of thyroid, their limits of tolerance being reached much sooner than in those who will remain mentally defective. Pituitary infantilism may be associated with diabetes insipidus, a variable degree of obesity or local symptoms due to a pituitary tumor. In some cases the condition is familial.

South African Medical Journal, Cape Town

13: 223-270 (April 8) 1939

History of Medicine: Medical Establishments and Institutions at the Cape. P. W. Laidler.—p. 223.
Undulant Fever: Its Incidence in South Africa. J. Barnetson.—p. 230.
Laboratory Investigations of Two Cases of Trypanosomiasis Contracted in Ngamiland, Bechuanaland. J. H. S. Gear and B. de Meillon.—p. 233.
Diffuse Polyposis of Large Bowel: Case Report. A. Y. Mason.—p. 237.
New Concept of Causation of Neoplasms. E. E. Faerber.—p. 239.
Two European Infections with Plasmodium Ovale in Southern Rhodesia. W. Alves.—p. 250.
Calcium Requirements of Adults. E. E. Buttner.—p. 251.
Analysis of Thirty-Six Cases of Typhoid Fever Treated with Concentrated Antityphoid Serum of the Lister Institute. A. Pijper and C. G. Crocker.—p. 255.
Incidence and Control of Venereal Diseases Among Natives of an Urban Area. G. W. Gale.—p. 265.

Tubercle, London

20: 301-348 (April) 1939

Frequency of Relapse After Pneumothorax Therapy in Pulmonary Tuberculosis with Cavity Formation. S. Cold.—p. 301.
*Teeth as "Indicators" in Tuberculosis. G. E. King-Turner.—p. 311.
Proposal for a Standard Method for the Preparation of Tuberculin and Antituberculosis Vaccine. G. Petragnani.—p. 314.
Genito-Urinary Tuberculosis. J. Carver.—p. 321.

Teeth as Indicators in Tuberculosis.—In discussing the underlying principles involved in the biochemical study of dental conditions, King-Turner declares that through the upsets of metabolism which are exhibited by the teeth it is possible to determine the cause of health and disease, namely colloidal equilibrium and disequilibrium. An upset in the blood reaction to a state of reduced alkalinity will result in a low p_H value of the saliva. This in turn will lead to the withdrawal of calcium ions from the enamel of the teeth, and this process will proceed as long as the p_H of the saliva remains on the acid side of neutral, so that in time the dentin becomes exposed and it is then that the chief bacteriologic phenomena occur. The reverse happens in an alkaline reaction and calcium ions are actually built into the enamel of the teeth so that in pyorrhea the well known clinical fact is borne out that the teeth are darker in color and denser in consistency. In applying this to tuberculosis the author states that he has been able to investigate the dental condition in conjunction with the tuberculous lesion in a number of cases and he asserts that there is a definite relationship. The active tuberculous lesion occurs alongside an active carious condition of the teeth. In fact, in a few cases that were apparently quiescent the appearance of new active caries in the teeth has been found on investigation to coincide with a flare-up of the tuberculous condition. On the other hand, those with no active dental lesion or with a tendency to pyorrhea have been found resistant to the tubercle bacillus or at least holding their own with evidence of fibrosis with or without a calcium deposit in the lungs. The point that the author wishes to make is this: if a patient who has already a tendency toward an acidosis acquires tuberculosis it is unlikely that he will have sufficient available ionized calcium to calcify the lung lesion. Even when apparently fit he is drawing on his calcium reserves in an endeavor to compensate for his acid tendency, and with the added stress of disease this using up of calcium will be enormously increased. In the alkaline type of case this deficiency is not present. In fact there is an abundance of base in the blood which is easily precipitated. The appearance of the active dental lesion more or less coinciding with an increased activity of the pulmonary condition is itself significant of the fact that an alteration of the soil, the blood reaction, precedes the activity of the tubercle bacillus. Apart from the wholesale extraction of teeth of a person who is obviously ill, the removal of teeth, other than definitely septic ones, in these cases eliminates a useful indicator of the patient's disease and its course.

Annales de Dermatologie et de Syphiligraphie, Paris

10: 257-368 (April) 1939

*Progressive Postoperative Gangrene of Skin. A. Touraine and R. Duperrat.—p. 257.
Pathogenesis of Superciliary Alopecia of Leprous Patients. J. Bertaccini.—p. 286.
Exfoliative Dermatosis with Cutaneous Melanotic Pigmentation and Pigmentary Invasion of Lymphatic Ganglions. C. Goedhart.—p. 316.

Progressive Postoperative Gangrene of Skin.—Touraine and Duperrat give a brief outline of the development of progressive postoperative gangrene and review the literature. They say that postoperative gangrene is due to a secondary infection of the cutaneous wound following an intervention on a septic process and that all other etiologic factors are of lesser importance. The primary operation consists either in the opening of a collection of pus, deep or superficial, or in an intervention on a normally infected cavity such as the digestive tube; this operation is always followed by drainage by means of a tube, compress or wick. The authors analyze the initial diseases which necessitated the surgical intervention in ninety-eight cases of progressive postoperative gangrene. Abdominal operations were performed in seventy of these cases, thoracic operations in eleven and the other operation concerned the opening of superficial abscesses. The authors say that approximately two thirds of the patients are males. The time which elapses between the day of intervention and the appearance of the first manifestations of the gangrene, the period of "incubation," lasts nearly always less than two weeks. The lesion usually begins at the edge of the wound, preferably at the point of contact with the drain. It begins as an erythematous spot, which becomes larger on the following day and often purpuric or cyanotic; one or two days later the spot becomes elevated and forms an inflammatory nodule which is violet; later the center becomes blackish and sloughing sets in. Thereafter it is no longer a question of pyodermitis or furuncle but gangrene must be considered. After describing the gangrenous ulceration, the authors say that the general condition of the patients usually remains satisfactory. The temperature generally remains around 38 C. (100.4 F.), but there are some cases in which it rises to 39.5 (103.1 F.) and even 40 C. (104 F.). The authors review the bacteriologic observations in eighty-one cases of progressive postoperative gangrene and find that in thirty-eight of these streptostaphylococcic symbiosis existed, but in twenty-four of these the symbiosis of Meleney was not pure but was accompanied by other micro-organisms. In sixteen of the eighty-one cases streptococci were found either pure or associated with other micro-organisms (not staphylococci). In eight cases staphylococci were found either alone or associated with other organisms (not streptococci). In still other cases diverse micro-organisms were found (neither streptococci nor staphylococci). The pathogenic mechanism of postoperative gangrene is not entirely understood as yet. Regarding the treatment, the author says that cauterization of the edges of the wound has given some good results, temporary amelioration or even cure, but in many cases it does not prevent relapses. The treatment of choice is radical excision in the healthy skin, preferably with an electric knife or thermocautery, or, if that is not possible, with an ordinary knife.

Archives des Maladies du Cœur, Paris

32: 337-448 (April) 1939

*Diagnostic Value of Triphasism of Rapid Wave in Angina Pectoris and in Coronary Syndromes. C. Laubry, P. Soulié and P. Laubry.—p. 337.
Capillary Function Seen by Ophthalmologist. P. Bailliart.—p. 367.
Sino-Auricular Block Caused by Intoxication with Massive Dose of Digitalis. R. Froment, A. Gonin and J. Viallier.—p. 372.
Action of Acid and Especially of Carbonic Acid on Coronary Circulation. G. Berthier and P. Gley.—p. 379.
Is Duration of Q-T Interval Influenced by Volume of Heart? B. Panourgias and D. Routier.—p. 386.
Spontaneous Rupture of Horizontal Aorta. J. Lenègre and P. Mathivat.—p. 393.

Triphasism of Rapid Wave in Coronary Syndromes.—Laubry and his associates say that, since the first discussion by Pardee and others of the diagnostic value of the Q wave in the course of coronary syndromes, the majority of investigators have devoted their investigations to this alteration of the rapid wave without giving much attention to other anoma-

lies that may be encountered. However, leaving aside the branch-block type of alterations and the microvoltages of the rapid wave, which are characteristic of diffuse lesions, there exists an interesting morphologic type, which is to be found in the coronary syndromes and in arterial diseases; that is, the triphasism of the rapid wave. This triphasism has been studied in the third lead by Katz and Slater, who define it in the following manner: After a more or less pronounced R wave and a well developed S wave, there can be observed a second positive wave at the base of the descending branch, from which originates the line which unites the rapid wave with the T wave. The authors criticize the definition which Katz and Slater gave of the triphasism of the rapid wave, pointing out that their own studies indicate that the triphasism of the rapid wave must be considered in a more general manner, without limiting its interpretation to the third lead and without rejecting the cases in which the median deflection of the triphasism is positive. Having observed that the triphasism of the rapid wave in the different leads is relatively frequent in the typical forms of coronary sclerosis, they investigated this symptom in a systematic manner in all coronary syndromes, in the anginal syndromes and in the course of various arterial diseases. They give brief reports of thirty-two cases and reproduce a number of electrocardiographic tracings. Interpreting the results of their studies, they first discuss the relative frequency of triphasism of the rapid wave, then triphasism in acute coronary thrombosis, in the anginal syndrome, in the arterial cardiopathies, in the valvular cardiopathies and in neurotonic manifestations. In the concluding summary they say that the triphasism of the rapid wave deserves systematic investigation not only in the third lead but in all standard derivations and even in the precordial one. This triphasism of the rapid wave is observed with great frequency in all cases with myocardial lesions, before all in the arterial disturbances and principally in the aortocoronary disorders in which angina pectoris or myocardial infarct exists. Moreover, it does not represent a deformation that is of fundamental and pathognomonic importance for coronary disorders or even for arterial sclerosis, because it can be observed also in the course of valvular cardiopathies, in certain indefinitely defined myocardial alterations and in some cardiovascular disorders of the neurotonic type. But without having absolute value, this triphasism of the rapid wave directs the diagnosis toward a myocardiac alteration and it suggests especially a disturbance in the coronary circulation. As in all minor alterations of the electric curve, it must be compared on the one hand with modifications of the ST and T waves and on the other hand with the entire clinical picture.

Gynécologie et Obstétrique, Paris

39: 241-320 (April) 1939

Action of Chloroform on Normal and Pathologic Uterine Contraction. Lévy-Solal and M. Sureau.—p. 241.
*Dangers of Artificial Delivery of Afterbirth. J. Rhenter and H. Magnin. —p. 249.
Suprasymphysial Delivery in Course of Low Cesarean Section and Its Difficulties. H. Vermelin and J. Louyot.—p. 256.
Heliotherapy in Treatment of Genital Tuberculosis in Women. A. Aimes.—p. 266.
Surgical Treatment of Diffuse Peritonitis After Abortion. E. Rochet and C. Ambre.—p. 273.
Treatment of Convulsive Eclampsia. Gellé.—p. 285.

Dangers of Artificial Delivery of Afterbirth.—Rhenter and Magnin investigated the results that were obtained with the artificial delivery of the afterbirth. Among the 12,760 deliveries that were managed at their clinic in the course of the last ten years there were 392, approximately 3 per cent, in which the afterbirth was delivered artificially. The technic was the classic one, always carried out with the gloved hand and general anesthesia. In 267 of the 392 cases the artificial delivery of the afterbirth was indicated by excessive hemorrhage, in twenty-four by retention (in two of these by placental impaction, in one by true adhesions and in the others by incarceration with or without generalized uterine contraction); in nine cases the artificial delivery was indicated by atypical conditions (three times following premature detachment of the placenta and six times in placenta praevia); finally, in ninety-two cases there was no special indication, the maneuver having been made following an obstetric intervention practiced under general anesthesia. At this clinic the incidence of artificial delivery of the afterbirth is somewhat higher than at two other clinics mentioned. Comparing the morbidity rate after the artificial delivery of the afterbirth with that after the spontaneous delivery, they find that it is 12 per cent higher. In the conclusion they emphasize that the indications for the artificial delivery should not be extended beyond those that are necessitated by abundant hemorrhages and by relatively prolonged retention. Moreover, the prophylaxis of these two complications is of primary importance. After citing results obtained by Snoeck and Bernard with injections of posterior pituitary, they report their own experiences with this form of prophylactic treatment. They reserve it for multiparas whose previous deliveries have been difficult or complicated by severe hemorrhages. They inject 10 units of posterior pituitary in the minutes which precede the expulsion of the infant. They have practiced this prophylactic treatment so far in 255 cases and the results have been encouraging.

Presse Médicale, Paris

47: 705-720 (May 10) 1939

*Migraine and Glycemic Perturbations. J. Girard and L. Collesson.—p. 705.
Traumatic Diabetes. F. Pedrazzini.—p. 707.
Alkaptonuria and Its Treatment. L. Mosonyi.—p. 708.

Migraine and Glycemic Perturbations.—After reviewing the literature on the behavior of the blood sugar in patients with migraine, Girard and Collesson report a case of migraine. A woman 18 years of age suffered from recurrent headaches, which appeared about once a month and were accompanied by vomiting. Medical advice was asked when she had a transitory paresis of the arms and of the right leg with aphasia, which persisted for about half a day. Immediately after this the typical symptoms of migraine developed with several attacks of vomiting. Acetylcholine and sedatives effected no improvement. Attacks of migraine recurred about three times a month. On the supposition that hypoglycemia might play a part, the sugar content was determined between attacks but to the great surprise of the authors it was 1.46. On the basis of this observation it was decided to restrict the carbohydrate intake. After the restricted diet had been continued for a month there was no improvement; the attacks recurred with the same frequency as before. The sugar content between attacks was now 0.99. In spite of this low sugar content the restricted diet was continued, but after five more months the frequency of the attacks had not yet changed. It was now decided to abandon the restriction of the carbohydrates, but the attacks of migraine recurred as before. Several months later a specimen of blood was withdrawn during an attack and it was found that the sugar content had the abnormally low value of 0.58. It was now decided to change the diet to one with a high carbohydrate content. In response to this treatment the attacks of migraine ceased at once. The favorable results of this diet continued for three years, that is until after the woman became pregnant. During the third month of pregnancy the attacks of migraine recurred. In the discussion of this case the authors express the opinion that there is a pathogenic connection between hypoglycemia and migraine.

Revue Française de Pédiatrie, Paris

14: 545-664 (No. 6) 1939

*Investigations on Action of Sodium Chloride in Nurslings. L. Garot, O. Gulko and C. Gottschalk.—p. 545.
Water and Chloride Exchanges in Dehydration of Nurslings. L. Garot, O. Gulko and C. Gottschalk.—p. 588.
Use of Acidified Dried Milk in Nurslings with Various Disorders. G. Paisseau.—p. 614.
New Studies on Cases of Anterior Poliomyelitis Observed in Alsace After Epidemic of 1930: Kinesitherapy of Poliomyelitis. R. Meyer. —p. 627.

Action of Sodium Chloride in Nurslings.—Garot and his collaborators point out that the phenomena of hydration are of great importance in nurslings. They aimed to study the action of sodium chloride, which was ingested with the food in large or small doses, on the water exchange; to specify the mode of retention of the chloride and sodium ions; to determine the indirect or late action of the ingestion of chlorides on the

increase in weight, and to verify their influence on the excretion of potassium. The authors describe their observations on twelve nurslings, all of whom were between 1 and 5 months of age. The alimentary state and digestive function of the infants were normal but their nutritional status varied. The interpretation of the results is rendered difficult by the existence of considerable individual variations. Nevertheless, on the basis of their observations the authors arrive at the following conclusions: 1. Sodium chloride, acting in strong or weak doses, is not bound to the water balance by a quantitative ratio. The observed hydration reactions are moderate and transitory, independent of the rate of retention of sodium chloride. 2. The organism of the nurslings retains a portion of the ingested salt. This ingestion varies between a few centigrams and several grams; it is effected without fixation of water in the great majority of cases. The retention of the chloride and sodium ions is not effected habitually in the ratio of sodium chloride, 0.64; there is in certain cases a profound dissociation of the salt, since the retention ratio Na/Cl varies between 0.45 and 1.88. 3. Sodium chloride provokes important reactional changes in the diuresis and in the insensible perspiration. These changes do not obey uniform rules; they are effected in various directions, but in general their resultant is a reaction of equilibrium which is opposed to variations in weight. 4. Large doses of sodium chloride have harmful effects, which persist for one or two weeks; they consist, in addition to fever, in a slowing up or an arrest of the increase in weight. The small doses of sodium chloride promote growth; this action is prolonged when the organism has restored almost completely the ingested salt. 5. The elimination of large quantities of sodium causes lowering of the excretion of potassium; the elimination of small quantities of sodium influences the excretion of potassium sometimes more and sometimes less.

Radiologia Medica, Milan

26: 373-474 (May) 1939. Partial Index

Roentgen Study on Development of Pulmonary Cavities. E. Vitale.—p. 373.
Duodenal Ulcer in Children. G. Bignami.—p. 394.
*Roentgen Treatment of Lymphogranuloma. G. Giordano.—p. 429.

Roentgen Treatment of Lymphogranuloma.—Giordano reports results of roentgen treatment in 102 patients with lymphogranuloma (Hodgkin's disease) who were under his observation from 1926 to 1937. The group included sixty-five men and thirty-seven women ranging in age from 11 to 80 years. The age of greatest frequency was between 21 and 30. The diagnosis of the disease was verified in seventy-six cases by biopsy, in eight by microscopic study after necropsy and in eighteen there was only a clinical and radiographic diagnosis. The irradiations were given as follows: from 160 to 180 kilowatts, 2 milliamperes through a filter of 0.5 mm. of copper plus from 2 to 3 mm. of aluminum, and at a focal distance of 50 cm. in cases in which the disease was located superficially and from 30 to 40 cm. when the disease was deeply located. At each treatment 250 roentgens was administered. The surrounding zones of skin were carefully protected from the irradiations. The duration and number of treatments were graduated according to individual cases. Generally the irradiations were given in turns so that a given field had the irradiations at intervals of two or three days. In cases of resistance to the roentgen treatment, curietherapy was administered. In cases of great diffusion of the disease Palmieri's method of "superteleroentgen therapy" was resorted to. The method consists in irradiating the whole body with two ampules (one under the other) at a distance of 3.5 meters from the level of the bed. The dose is 180 kilowatts, 4 milliamperes, through a filter of 0.5 mm. of copper plus 2 mm. of aluminum, in doses of 25 roentgens for each treatment, with a duration of two hours. The treatments may be given at intervals of four or five days. The author found that curietherapy and superteleroentgen therapy give immediate satisfactory but transient results. The results of the roentgen treatment depend partly on the location and type of evolution (acute or chronic) of the disease and partly on opportune administration. The best results are obtained when the treatment is administered early in the development of the disease. In the author's cases, duration of life after the treatment was more than three years in forty-five cases and more than five years in twenty-one cases. Only eighteen patients in the whole group, who did not show recurrence of the disease during the period of survival from the treatment, were able to resume work afterward. The author considers early local roentgen therapy the treatment of selection in the disease.

Arch. Soc. de Estudios Clinicos de la Habana, Havana

33: 177-255 (April) 1939. Partial Index

*Conic Amputation of Neck of Uterus (Sturmdorf's Operation) with Electric Bistoury. D. González Mármol.—p. 177.
Lymphosarcoma of Stomach. R. Vega Umpierre.—p. 217.

Amputation of Neck of Uterus.—González Mármol performed Sturmdorf's operation by means of the electrical bistoury in ninety-six cases of chronic cervicitis which had been resistant to all local medical treatments. The operation was done either alone or in association with or after some other operation on the internal genital organs. In all cases regional or local anesthesia (spinal, local, epidural or sacral) was administered. The technic followed by the author is as follows: (1) The vaginal flap is previously dissected by the acusector, (2) the base of the cone is delineated and the cone shaped out and resected by the acusector also, (3) the flap of the vaginal mucosa is apposed to the bleeding surface and sutured with a few stitches and (4) a Hegar sound is introduced every other day during the cicatricial period in the newly formed orifice of the neck to prevent closing of the orifice. The author found that the operation gives satisfactory results and has the following advantages: The technic is easy, the exeresis is uniform, the hemostasis is good, the scar left by the operation is small and of a cosmetic aspect, and immediate or late hemorrhages and local infection do not complicate the operation, which does not interfere with the function of reproduction of the patients. The electrical bistoury sterilizes the tissues while cutting them and occludes the lymphatic vessels with which it comes in contact. By these facts local infection, regional lymphangitis and propagation of cancer in the presence of precancerous lesions or of early cancer in the neck are prevented. Pregnancy took place in many of the patients three or four months after the operation. Pregnancy, labor and the puerperium were normal in all cases.

Deutsches Archiv für klinische Medizin, Berlin

184: 1-128 (April 18) 1939. Partial Index

Necroptic and Bioptic Control Examinations of Functional Tests of Pancreas. W. Berger and H. Schnetz.—p. 1.
*Circulatory and Respiratory Correlations as Basis of Functional Capacity of Different Constitutional Types. O. Bickenbach.—p. 28.
Hypertrophy of Left Side of Heart Without Hypertension or Aortic Defect: Electrocardiographic Diagnosis of Hypertrophy of Left Side of Heart. J. Waider.—p. 65.
Osteitis Deformans (Paget). F. Parks Weber and H. Huber.—p. 78.
Investigations on Clinical Evaluation of Negative T Wave in Third Lead of Electrocardiogram, on Basis of Its Behavior in Deep Inspiration. H. Zothe.—p. 85.
Respiratory Insufficiency in Bronchial Asthma. W. Wolf.—p. 100.

Circulatory and Respiratory Correlations.—Bickenbach shows that all tests which have been recommended for the determination of the functional capacity are inadequate for the estimation of the general functional capacity of a person. Although the analytic tests are important for physiologic research, they are insufficient for the practical requirements of selection for athletic activities, military service and so on. In this paper the author reports studies on twenty-one persons, all of whom were free from metabolic, circulatory and respiratory disorders. According to their constitutional type they were classified into three groups: athletic, normal and asthenic. The cardiac minute volume, the beat volume, the utilization of oxygen and the dissociation capacity of the oxyhemoglobin insure with the external respiration an adequate oxygen supply for the working tissues and the removal of the metabolic waste products from the tissues. The author studied the correlative behavior of these factors in the aforementioned constitutional types. None of the examined circulatory and respiratory factors serve as a measure of the functional capacity of the person in question; together, however, they show a characteristic correlative behavior in the different constitutional types. The

basal metabolic rate is low in the asthenic person, but the oxygen consumption during rest is not reduced in proportion to the functional weakness. The reduced oxygen consumption of the asthenic person requires only a reduced minute volume; it is carried with approximately the same pulse frequency; that is, with a proportionate low beat volume. The minute volume per kilogram of body weight shows the strongest, the minute volume per square meter of body surface shows the smallest, individual fluctuations in asthenic persons. The blood profusion during rest is greater in the athletic person than in the asthenic person. The circulating quantity of blood is noticeably reduced in the asthenic person but not to the same degree as is the minute volume; from this observation the author deduces a uniform dilatation of the arterioles of all capillary regions in asthenic persons and the slight importance of blood depots in healthy persons. The circulation time is considerably prolonged in asthenic persons and this prolongation explains the greater withdrawal of oxygen from the blood and the greater arteriovenous difference in oxygen in asthenic than in athletic persons. Asthenic persons compensate for their reduced oxygen requirements by an accelerated superficial respiration. Citing comparative values observed in normal and in athletic persons, the author shows that the circulation of asthenic persons works uneconomically and this explains the comparatively slight margin of adjustment and the low functional capacity of the asthenic person.

Klinische Wochenschrift, Berlin

18: 557-588 (April 22) 1939. Partial Index

Effects of Food Before Resorption by Intestine. W. Kollath.—p. 557.
Difference in Efficacy of Vitamin A Concentrates from Fish Liver Oils. W. Grab and T. Moll.—p. 563.
Action of Lonephin Depot in Diabetes Insipidus. R. Wankmüller.—p. 566.
Behavior of Gonococci in Chemotherapy. Felke.—p. 568.
*Articular Rheumatism in Exophthalmic Goiter. K. Veiel.—p. 569.
Action of Nerium Oleander in Cardiac Decompensation. L. Binder.—p. 573.
Quantitative Determination of Porphyrin with Selenium Photo-Element. G. Weiss.—p. 575.

Articular Rheumatism in Exophthalmic Goiter.—Veiel says that generally articular symptoms are absent in patients with exophthalmic goiter. However, a chronic polyarthritis has been described repeatedly as a rare accompanying symptom of exophthalmic goiter. To be sure, some investigators have denied a causal connection between polyarthritis and exophthalmic goiter. The author says that in the course of the last four years he has observed eight cases in which there were articular disturbances among seventy cases of exophthalmic goiter. He reports the clinical histories of these eight cases and shows that in four of them a connection between the articular rheumatism and the exophthalmic goiter may be regarded as proved. In these cases the polyarthritis had developed gradually and without increase in temperature in the course of a typical hyperthyroidism and it had disappeared, together with the other symptoms of exophthalmic goiter, after roentgenotherapy or surgical treatment of the goiter. In accord with reports in the literature, the author observed that this thyrogenic arthritis does not differ in its clinical aspects from other chronic arthritides or arthropathies. Apparently it affects first chiefly the large joints (shoulders, knees, hips), but it may attack also the joints of the fingers. It has in common with rheumatic polyarthritis the tendency to attack several joints successively. Effusion into the joint was observed in none of the cases of thyrogenic arthritis and severe degrees of swelling were observed only once. Stiffening and deformities of the joints, which had been reported by some authors, were never observed by Veiel. The roentgenographic aspects of the joints were on the whole normal. It seems to be characteristic for the cases of thyrogenic arthritis that they fail to respond to the pyrazolon preparations, which are usually quite effective in other forms of arthritis. Large doses of aminopyrine were effective in none of the cases and salicylates and physical measures were likewise without effect. However, treatment with iodine usually produced a noticeable improvement in the articular symptoms of thyrogenic arthritis, as did also roentgen or surgical treatment of the goiter.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

105: 273-446 (April 3) 1939. Partial Index

Hormonal Modification of Hepatic Glycogen with Special Consideration of Hypophysial Hormone of Carbohydrate Metabolism. R. Merten.—p. 273.
Action of Purified Extracts of Anterior Lobe of Hypophysis on Free and Combined Sugar and on Lactic Acid of Peripheral Blood. R. Merten and K. Hinsberg.—p. 281.
Relationship of Sodium and Water Elimination in Spontaneous Diuresis. U. Schaare.—p. 314.
*Tonsils and Development. I. S. Pohl.—p. 330.
Specific Dynamic Action of Protein in Twenty-Four Hour Rhythm and Question of Sympathetic Regulation. W. Linneweh.—p. 345.
Experimental Investigations on Therapeutic Action on Cancerigenic Hydrocarbons in Treatment of Cancer. H. J. Lauber, E. Hildebrand and H. Schocke.—p. 370.
Organic Changes Caused by Autogenous Substances with Circulatory Action: II. Acetylcholine. H. Heinlein.—p. 406.

Tonsils and Growth.—Disregarding the dispute about the value or worthlessness of the tonsils, Pohl gives his attention to the possible existence of a growth factor in these lymphoepithelial organs. After citing contradictory observations on this problem from the literature, he describes his own studies. He is able to demonstrate on growing viviparous fishes and on young axolotls that the addition to their food of dried substance from the tonsils of hogs resulted in an increase in size which was considerably in excess of that obtained in the control group that was given an addition of the same substance after it had been irradiated. In a second control group, which was given dried spleen from cattle instead of the tonsil tissue, the growth was considerably less than that of the groups fed with tonsillar substance. From this the author concludes that dried tonsillar substance contains a growth promoting substance. In this respect his studies contradict those of Griebel, Voss, Ricci, Meano, Peller, Scheer and others but corroborate those of Slobodnik, Reichmann, Hattori and others. Pohl's observation that even irradiated tonsillar substance contains growth promoting factors, although not in the same quantity as does unirradiated tonsillar substance, contradicts the assertions of Voss and Griebel but confirms those of Reichmann. The author suggests that the contradictory observations on the growth factor in the tonsils might be explained on the basis of observations made by Skoog. This author observed a considerable decrease in the rate of growth in embryonal fibroblasts following the addition of tonsillar extract; however, this inhibition of growth was not observable when sterile tonsillar extract was used, whereas extracts of the bacteria obtained from the tonsils did inhibit the growth. Thus, this inhibition must be regarded as an impairment by bacterial toxins. If it is taken into consideration that this bacterial content is dependent on age, nutrition and individual metabolic factors, as well as on local and seasonal factors, it becomes clear why experiments with tonsillar substance produce such divergent results. After citing studies which make it appear likely that the tonsils have an endocrine function, the author says that additional studies will be necessary to reach a definite conclusion on this problem.

Zentralblatt für Chirurgie, Leipzig

66: 833-928 (April 15) 1939. Partial Index

Treatment of Necrosis of Os Lunatum by Packing with Plaster of Paris. O. Nordmann.—p. 834.
*Operative Removal of a Fetus in Fetu. H. von Haberer.—p. 840.
Vertebral Fracture Caused by Insulin Induced Cramps. A. Fromme and E. Wachs.—p. 844.
Method of Bone Suture. G. Magnus.—p. 847.
Extirpation of Pulmonary Lobe and of Entire Lung. E. K. Frey and H. Lüdeke.—p. 851.
Results with Ganglionectomy in Causalgia and in Certain Cases of Endangiitis Obliterans. H. Coenen.—p. 860.

Operative Removal of Fetus in Fetu.—Von Haberer reports the case of a girl aged 4 years who was observed by the parents to have a prominent enlargement of the abdomen at the age of 2 years. This was diagnosed one year later as Hirschsprung's disease. Examination at von Haberer's clinic revealed a marked enlargement of the abdomen, particularly on the left side, and a palpable tumor the size of a child's head. The blood picture spoke against a splenic tumor and intravenous pyelography revealed normal kidneys. Roentgenography demonstrated a normal colon and a large shadow with calcified foci within it. At operation the author found a large intra-abdominal tumor the freeing of which required dissection

of the adherent transverse mesocolon, ligation of the left renal vein, removal of a normal left kidney and the unwinding of the pedicle of the tumor from adhesions to the pancreas and the left adrenal. The tumor when removed was about the size of a man's head and weighed 2,400 Gm. A roentgenogram of the tumor revealed a head, the bones of a well developed upper extremity and below a number of other bones. Thus the tumor was a fetus enclosed within a twin sister and developing at her expense. When the specimen was preserved, incision of the sac demonstrated readily a head and a well developed upper extremity, while at the opposite pole the genital anlage could be recognized. The child made an uneventful recovery.

Netherlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 1575-1708 (April 8) 1939. Partial Index

Hemorrhoids. M. N. Roegholt.—p. 1577.
*Lead Content of Urine and Its Relation to Clinical Diagnosis of Lead Poisoning. J. F. Reith and C. P. van Dijk.—p. 1584.
Treatment of Pneumonias and of Other Pneumococcic Disturbances with Sulfanilamidopyridine (M & B 693, Dagénan). L. A. Hulst and F. L. J. Jordan.—p. 1592.
Electro-Encephalograms of Patients with Epilepsy and Something Regarding Their Explanation. H. R. van der Molen.—p. 1599.
Treatment of Peptic Ulcer by Family Physician. J. P. Voûte.—p. 1606.

Lead of Urine and Lead Poisoning.—Reith and van Dijk say that acute lead poisoning is rare and that the cases that are encountered in practice are usually of the chronic type or are marginal cases in which it is desirable to corroborate the diagnosis by chemical examinations. Lead may enter the organism by way of the lungs, the gastrointestinal canal and the skin. With a normal diet and a normal way of life, every person takes in a certain amount of lead and this normal lead intake has been estimated at from 250 to 500 micrograms a day. The elimination of lead from the organism has been repeatedly investigated and it has been established that the largest quantity is eliminated by way of the feces. As regards the urine, it has been determined by some that approximately one tenth of the lead taken in with the food is eliminated with the urine. Although the lead content of the blood has received considerable attention in recent years, the urinary elimination of lead is still regarded as an indicator of the severity of lead poisoning. However, the estimation of the urinary lead content is hampered by the lack of agreement on the normal lead content of the urine. Consequently the authors studied the lead content of the urine of 102 normal persons. They made their tests with the dithizone (diphenylthiocarbazol) method. In the urines collected during a twenty-four hour period the values varied between 8 and 59 micrograms, but in 98 per cent of the cases the lead value was below 50 micrograms. Calculated per liter of urine, the figures were between 5 and 39 micrograms (in one case 55 micrograms). Thus the lead content per liter remained below 40 micrograms in 99 per cent of the cases. The author emphasizes that in making these tests it is necessary to know that bismuth is a possible source of error, as it reacts with diphenylthiocarbazol almost like lead.

Acta Medica Scandinavica, Stockholm

99: 387-509 (April 5) 1939

Internal Secretion and Resistance to Injurious Factors. E. Agduhr.—p. 387.
Connection Between Formol-Gel Reaction and Blood Proteins. A. de Vries.—p. 425.
Metabolism of Amino Acids and Liver Function. J. Hořejší and A. Mecl.—p. 435.
Experimental Investigations of Hydrochloric Acid Secretion in Scorbutic Guinea Pigs. T. Nordström.—p. 443.
*Real and So-Called Deficits of Vitamin C. G. A. Kreuzwendedich von dem Borne.—p. 449.
*Fermentative Dyspepsia and Fermentative Enterocolitis. I. Holmgren.—p. 476.
Method of Determining Diabetogenous Hormone in Urine. H. Kjems and T. Bjering.—p. 492.
Megakaryocytic Myelosis with Paraplegia: Case. J. Bamforth and C. Kendall.—p. 494.

Real and So-Called Vitamin C Deficiencies.—Kreuzwendedich von dem Borne surveys the experiences with the determinations of the vitamin C content of the blood and urine and with the so-called saturation tests. He thinks that, in view of the fact that even in normal persons it is necessary to administer five or six times 300 mg. of ascorbic acid before saturation is accomplished, it would be better to speak of saturation values than of vitamin C deficits. He regards it as erroneous to draw conclusions merely from a single determination of the vitamin C content of the urine but shows that in order to determine the saturation values it is necessary to employ several tests. The vitamin C content of the blood should be determined before as well as after the administration of vitamin C, saturation tests should be made with daily oral administration of 300 mg. of ascorbic acid, and after saturation it is necessary to determine the urinary elimination of vitamin C in twelve hours. In this manner it is possible to determine the cases in which the intestinal resorption of vitamin C is impaired. In various types of anemia the author found no noticeable deviations. Outside of an increase in reticulocytes, the administration of vitamin C produced no therapeutic effect. In hemorrhagic diathesis (Werlhof's disease, Henoch-Schönlein's purpura, hemophilia and so on) the author observed neither deviations nor therapeutic effects. To be sure there seem to be cases of so-called essential thrombopenia, which are the result of a C avitaminosis. The author observed vitamin C deficits also in several cases of peptic ulcer. He thinks that this might be the result of a restricted diet. Moreover, the vitamin C requirements seem to be increased in patients with peptic ulcer, but the efficacy of the administration of vitamin C is still doubtful in these cases. In patients with chronic polyarthritis, the administration of vitamin C is apparently ineffective. In nontropical sprue the absorption of vitamin C seems to be impaired and for this reason it is necessary to administer large quantities of it. In leukemia the administration of vitamin is of no therapeutic value. The author reaches the conclusion that true deficits of vitamin C are rare and that there is no justification for the prevailing tendency of prescribing vitamin C for many different conditions. In cases in which vitamin C seemingly produces therapeutic results it should first be determined whether a hypovitaminosis actually exists. To ascribe to a deficiency in vitamin C an etiologic significance in various disorders is even less justified. Moreover, it should be considered that the intake of natural vitamin C in citrus fruits is probably not only cheaper but also better than the administration of expensive synthetic preparations.

Fermentative Dyspepsia and Fermentative Enterocolitis.—Holmgren says that intestinal fermentative dyspepsia or fermentative diarrhea is characterized by the fermentation of carbohydrates in the intestine. Although it has been generally accepted that the disorder is merely functional and has no anatomic foundation, the author is convinced that it is possible to demonstrate anatomic changes and that fermentative dyspepsia is really an infectious disease, a fermentative enterocolitis. Since 1923 he has replaced the term fermentative dyspepsia with fermentative enterocolitis or enterocolitis with an iodophil flora. That this disorder has received little attention in medical text books is ascribed by the author to the fact that the mild forms are often overlooked and that the disorder is probably not as frequent in other countries as it is in Sweden. The symptoms which induce the patients to seek medical advice are abdominal pains, which are caused by the excess of gas in the intestine, unformed stools and lack of appetite. The symptoms are often provoked or intensified by foods that have a high cellulose and starch content. The patients frequently show slight pallor, a mild anemia and meteorism. The feces, which are unformed and of the consistency of pulp or paste, give an acid reaction and have a repugnant odor; if they are placed in a glass jar it is possible to observe the fermentation. Microscopic examination of the feces discloses an iodophil flora. The author reviews the bacteriologic studies on fermentative enterocolitis which were conducted by Nanna Svartz. This investigator encountered several species of Clostridium, but the predominating one was Clostridium butyricum iodophilum. Another organism to which this investigator gave especial attention was Bacillus perfringens. Following the review of these bacteriologic studies, the author reports his studies on the gastric secretion of patients with fermentative enterocolitis. He shows that a large percentage of these patients have an insufficiency of the hydrochloric acid secretion of the stomach. Moreover, persons with achlorhydria and hypochlorhydria are subject to fermentative enterocolitis much more frequently than is the population in general.